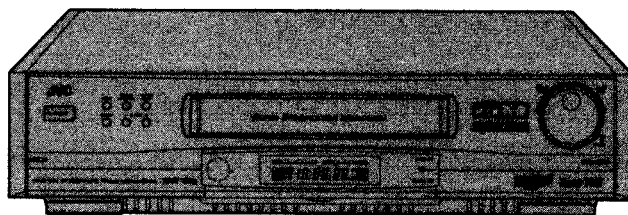


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S5100U/S7100U



Hi-Fi

S VHS

VCRplus^{c3}
w/Cable Channel
Changer

Regarding service information other than these section, refer to the HR-S4900U/S6900U service manual (No. 82364). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-S7100U)*

GENERAL

Power requirement	: AC 120 V~, 60 Hz
Power consumption	: 29 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: -20°C to 60°C (-4°F to 140°F)
Humidity	
Operating	: 35% to 80%
Storage	: 5% to 80%
Operating position	: Horizontal only
Dimensions (WxHxD)	: 459 x 109 x 387 mm (18-1/8" x 4-5/16" x 15-1/4")
Weight	: 6.6 kg (14.6 lbs)
Format	: S-VHS/VHS NTSC standard with Hi-Fi audio
Tape width	: 12.65 mm
Tape speed	(SP) : 33.35 mm/sec (1-5/16 ips)
	(EP) : 11.12 mm/sec (7/16 ips)
Maximum recording time	(SP) : 160 min. with T-160 video cassette
	(EP) : 480 min. with T-160 video cassette

VIDEO

Signal system	: NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording/Playback system	: DA-4 (Double Azimuth) head helical scan system
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	: 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	: 45 dB (Rohde & Schwarz noise meter)
Horizontal resolution	: 400 lines (S-VHS)
	: 240 lines (VHS)

AUDIO

Input	: -8 dBs, more than 50 k-ohms, unbalanced
Output	: -8 dBs, less than 1 k-ohm, nbalanced (100 k-ohms, load)

NORMAL AUDIO

Recording system	: Longitudinal track
No. of channels	: 1 normal audio channel
Frequency response	: 70 Hz to 10,000 Hz

HI-FI AUDIO

Recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of channels	: 2 Hi-Fi audio channels
Frequency response	: 20 Hz to 20,000 Hz
Dynamic range	: More than 90 dB
Wow and flutter	: Less than 0.005% WRMS

TUNER

Tuning system	: Frequency synthesized tuner
Channel coverage	
(VHF)	: Channels 2-13
(UHF)	: Channels 14-69
(CATV)	: 113 Channels
RF output	: Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz-crystal
Program capacity	: 1-year programmable timer/8-programs
Memory backup time	: Approx. 10 min.

ACCESSORIES

Provided accessories	: RF cable (F-type), Infrared remote control unit, "AA" battery x 2, S-Video cable (4-pin), Audio/Video cable, Mini-plug cable (3.0 m), Mini-plug cable (1.5 m), Multi-System Cable Box Controller, Multi-Brand R.A. EDIT Controller, Lithium battery (CR2025) x 2, AC power cord
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Specifications shown are for SP mode unless otherwise specified.
E. & O.E. Design and specifications subject to change without notice.

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The following table lists the differing points between Models (suffixed HR-S6900U and HR-S4900U) in this series.

Item \ Model	HR-S6900U	HR-S4900U
SIDE PANEL	○	×
MIC INPUT CONNECTOR	○	×
RA EDIT CONTROL LED	○	× (OPTION)

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the  symbol and shaded (▨) parts are critical for safety.

Replace only with specified part numbers.

Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.

Caution for continued protection against fire hazard.

Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:

- | | | |
|--------------------|--------------------------------------|------------|
| 1) Insulation Tape | 3) Spacers | 5) Barrier |
| 2) PVC tubing | 4) Insulation sheets for transistors | |

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

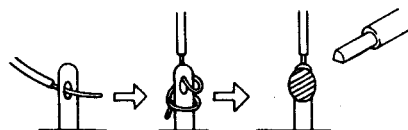


Fig. 1

7. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

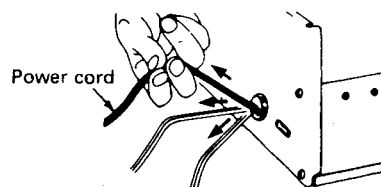


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)

In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector

In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1) **Connector part number :** E03830-001

2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.

3) **Replacement procedure**

(1) Remove the old connector by cutting the wires at a point close to the connector.

Important : Do not reuse a connector (discard it).

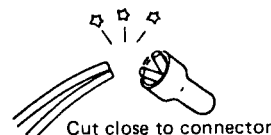


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

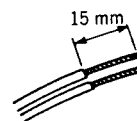


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

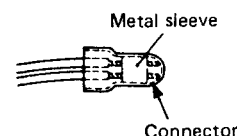


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

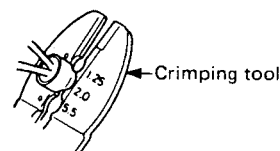


Fig. 6

(5) Check the four points noted in Fig. 7.

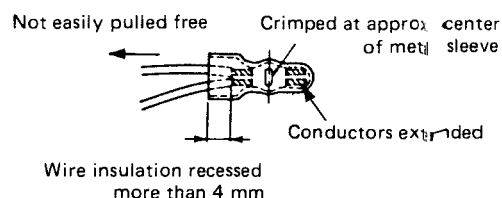


Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

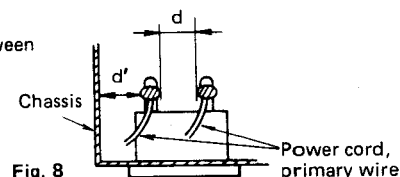
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

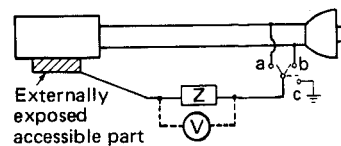


4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

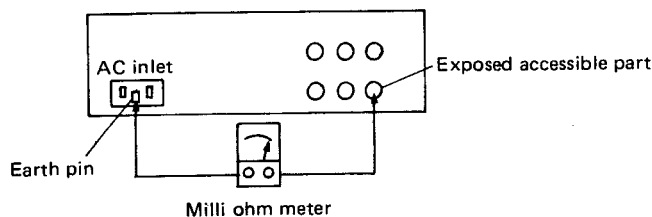


5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.



Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega / 500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	—	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega / 500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm (Power cord)}$ $d' \geq 6 \text{ mm (Primary wire)}$

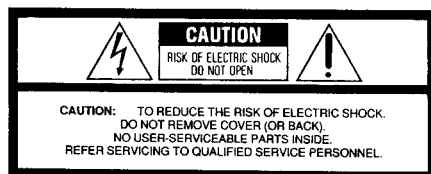
Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
220 to 240 V		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION:

This video cassette recorder should be used with AC 120V~, 60 Hz only.
To prevent electric shocks and fire hazards, do NOT use any other power source.

Warning on lithium battery

The battery used in this device may present a fire or chemical burn hazard if misused. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.
■ Dispose of used battery promptly.
■ Keep away from children.
■ Do not disassemble and do not dispose of in fire.



■ Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".

INSTRUCTIONS

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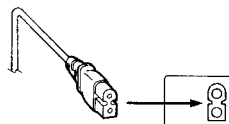
CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:

POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

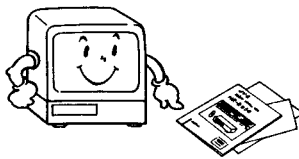
CAUTION:



To avoid electric shock or damage to the unit, first firmly insert the small end of the AC power cord into the VCR until it is no longer wobbly, and then plug the larger end of the AC power cord into an AC outlet.

NOTE:

- When you are not using the video recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- The rating plate and the safety caution are on the rear and/or side of the unit.
- Changes or modifications not approved by JVC could void user's authority to operate the equipment.
- Please read the "Precautions" section of this instruction manual and the "Video Products Safety Guide" enclosed with this manual before installing or operating the VCR.
- This instruction manual, and the other reference materials enclosed with it, contain important information on VCR operation and proper usage. Please keep them near your VCR in a place where you can easily access them for reference.



How To Use This Instruction Manual

This instruction manual has been designed with both new and experienced users in mind. It begins with the introductory sections "Getting To Know Your VCR" and "Using Your Remote Controls", followed by necessary set-up procedures in "Setting Up Your VCR". The next three sections — "Playing A Tape", "Recording On A Tape", and "Timer-Recording With VCR Plus+™" — take you step-by-step through these basic operations of your VCR. This is followed by "Special Features", in which a variety of your VCR's advanced functions are introduced. "If You Have Any Questions" is the section you should refer to if you experience any problems in VCR operation or if you need additional information regarding a feature or terminology. At the end of the book you will find a "Guide Channel List For VCR Plus+™", followed by locations you can contact "For Servicing", and "Warranty" information.

Throughout the book, if you ever need to refer to another page for instructions or information, you will be told so by a mark pointing to the page number.

Unless otherwise specified, operation buttons mentioned in the instructions refer to those located on the remote control, not those duplicated on the VCR.

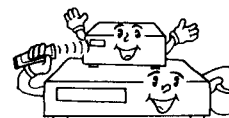
Remember, you must use your VCR correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC VCR.

Some of your VCR's features VCR Plus+™ Programming



Easy timer programming—just punch-in the code number in your TV listing.

Multi-System Cable Box Controller



For automatic switching of your Cable Box's channel during timer-recording.

Family Message



It's like a built-in electronic bulletin board.

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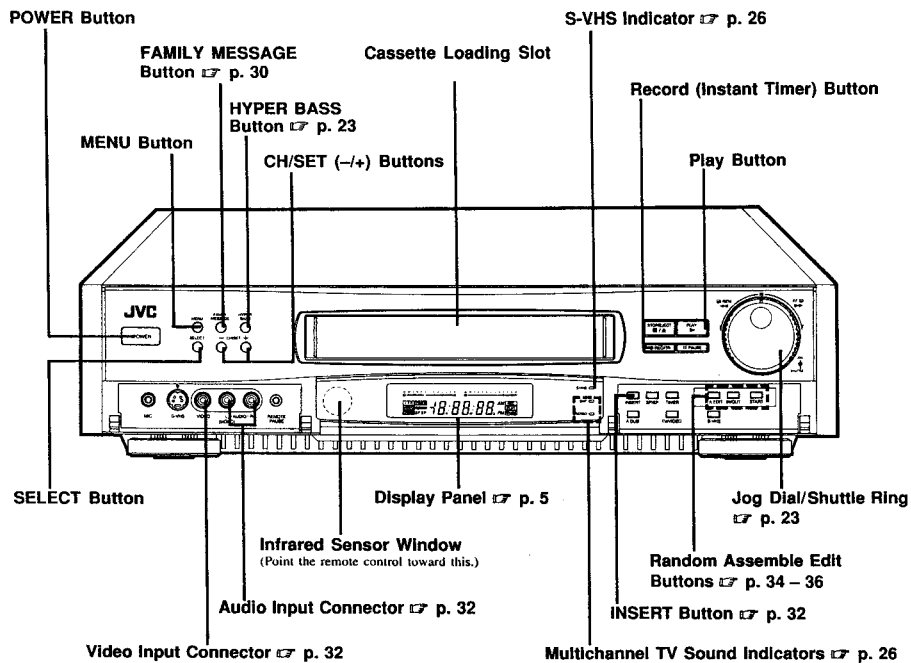
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VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

Getting To Know Your VCR

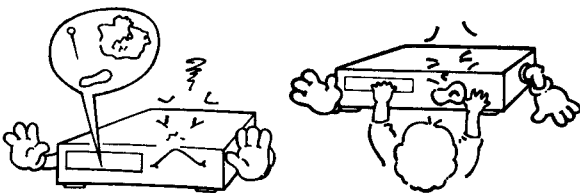
Your VCR's controls and connectors

Front Panel

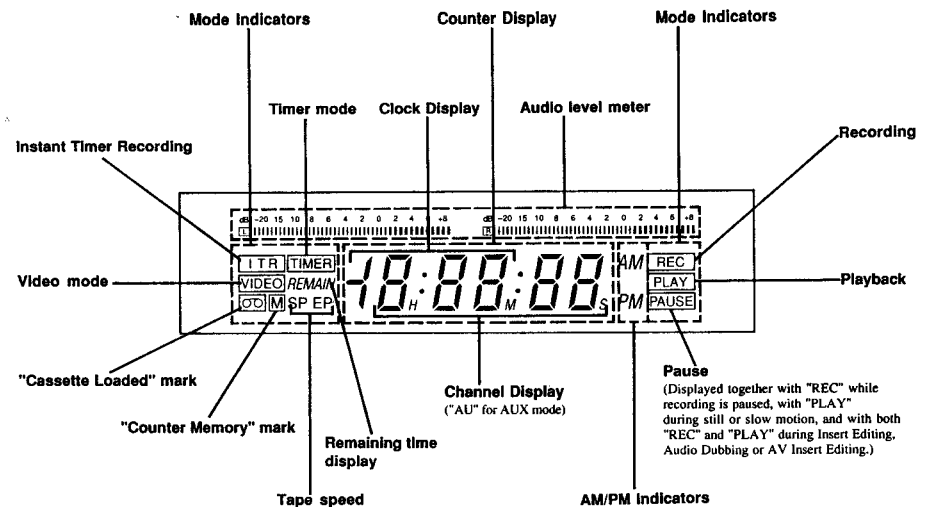


WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started. This could cause injury or damage to the mechanism.



Display panel (FDP)

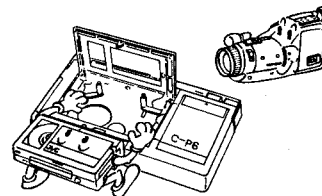


- Pressing DISPLAY lets you change the type of display: Counter, Channel, Clock or Remain.
- Whenever the VCR is turned off, the FDP's brightness is automatically dimmed.

Usable cassettes

Full-Size VHS
T-30 (ST-30**)
T-60 (ST-60**)
T-90
T-120 (ST-120**)
T-160 (ST-160**)

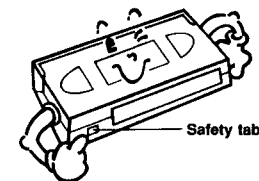
Compact VHS*
TC-20 (ST-C20**)
TC-30 (ST-C30**)



- * Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorder cassette into a C-P6 Cassette Adapter and it can be used just like any full-sized VHS cassette.
- ** This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

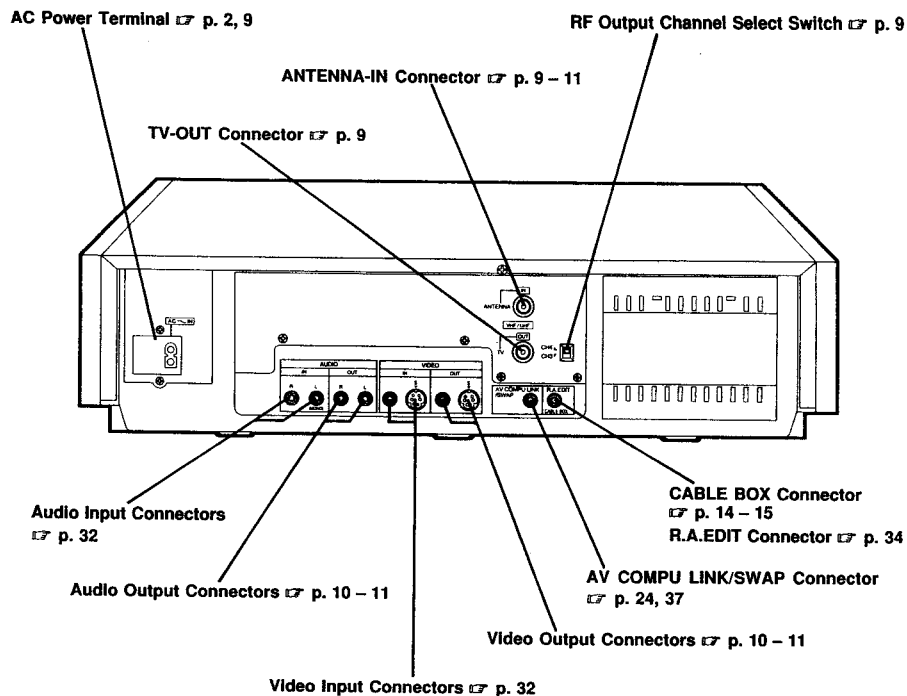
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



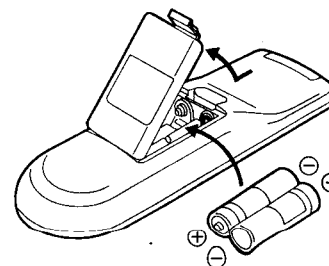
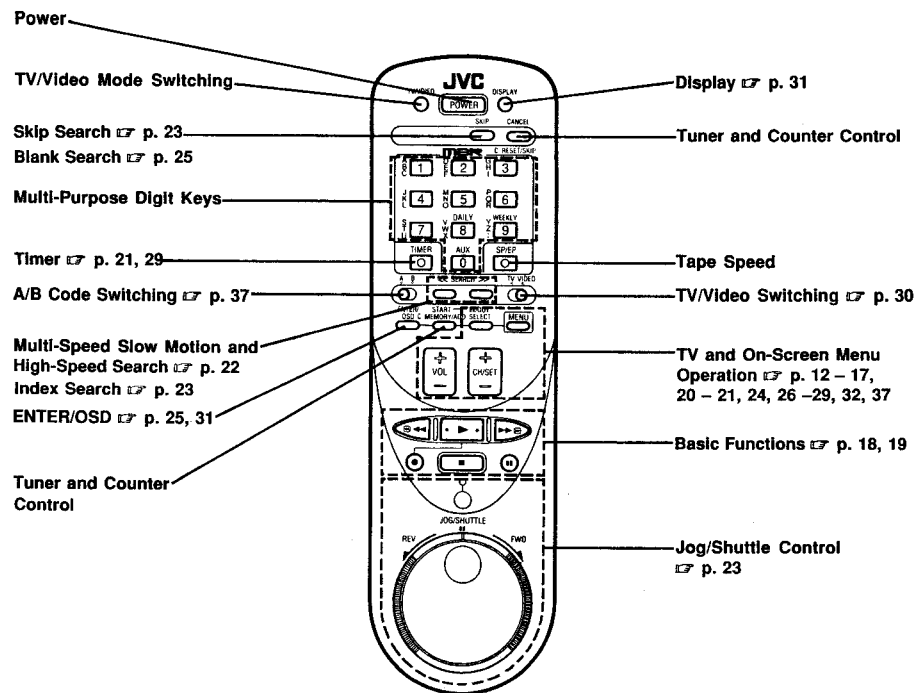
Getting To Know Your VCR (cont'd)

Back Panel



Using Your Remote Controls

Wireless Remote Control



Installing Batteries

- 1 Slide the battery compartment cover in the direction of the arrow.
- 2 Insert 2 "AA"-size batteries (provided) in the correct directions.
- 3 Replace the cover.

How To Use

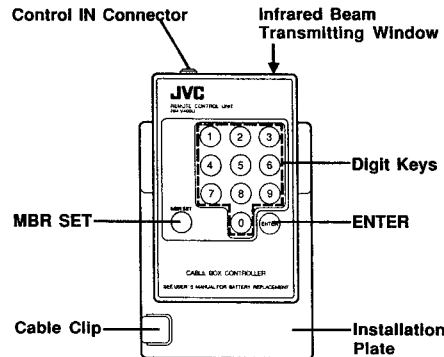
This remote control can operate most of your VCR's functions.

- 1 Point the remote control toward the VCR's sensor window.
- 2 Press the appropriate operation button.
 - The maximum operating distance of the remote control is about 8 m (26 ft).

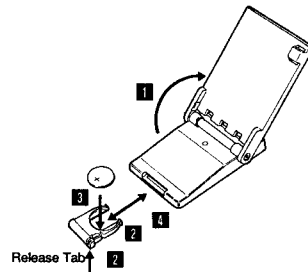
This remote control can also operate TVs of various brands. For instructions, ☞ p. 30.

Using Your Remote Controls (cont'd)

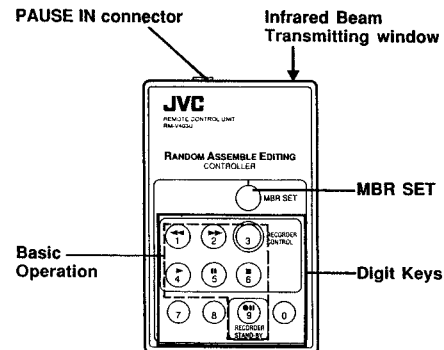
Multi-System Cable Box Controller (p. 14, 15)



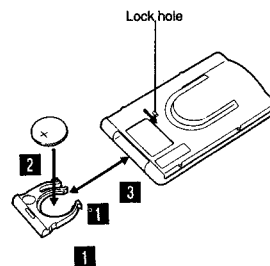
- 1 Raise the installation plate to access the battery compartment.
- 2 Pinch the release tab and pull out the battery holder.
- 3 Insert the lithium battery (CR2025), with its plus (+) side up, into the battery holder.
- 4 Replace the battery holder until it clicks in place.



Multi-Brand R.A. Edit Controller (p. 36)



- 1 Pull out the battery holder while sliding the lock hole.
- 2 Insert the lithium battery (CR2025), with its plus (+) side up, into the battery holder.
- 3 Replace the battery holder until it clicks in place.



This controller can be used for recorder's basic operations.

How To Use

- While pressing RECORDER CONTROL, press the Basic operation buttons:

◀ = Rewind ■ = Rewind
 ▶ = Fast-Forward ■ = Stop
 ▶ = Play

- RECORDER STAND-BY button (●) Record Pause) should be pressed on its own. (Do not press any other button simultaneously.)

Warning on lithium battery

The battery used in the above devices may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.

Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

Setting Up Your VCR

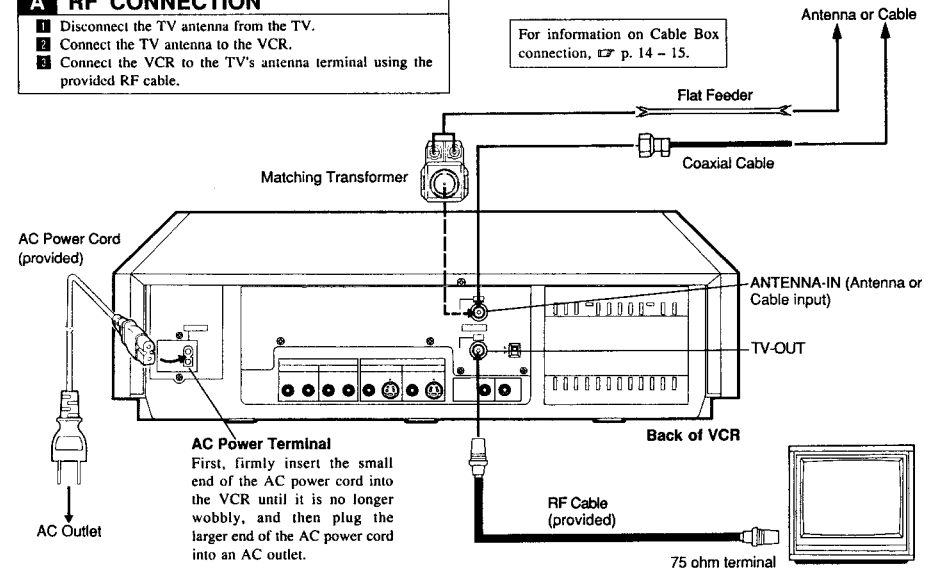
Making the right connections

It's essential that your VCR be properly hooked up for proper results. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VCR OPERATION CAN BE PERFORMED.

IF YOU HAVE A STANDARD TV SET

A RF CONNECTION

- 1 Disconnect the TV antenna from the TV.
- 2 Connect the TV antenna to the VCR.
- 3 Connect the VCR to the TV's antenna terminal using the provided RF cable.

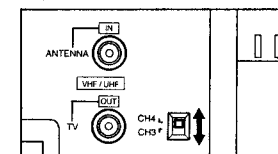


See the "Basic Guide For VCR Connections" sheet enclosed with this instruction manual for more information and other possible connections.

B SELECT VCR CHANNEL (3 OR 4)

With a standard RF connection, the VCR sends picture and sound signals through the connecting cable to your TV on channel 3 or 4. The VCR's switch is pre-set to CH3 prior to shipment. Set this switch to CH4 in areas where channel 3 is used for broadcasting.

Back of VCR



NOTE:

To operate the VCR with your TV using an RF connection, it is always necessary to set your TV's channel to the one you set the VCR to in this step.

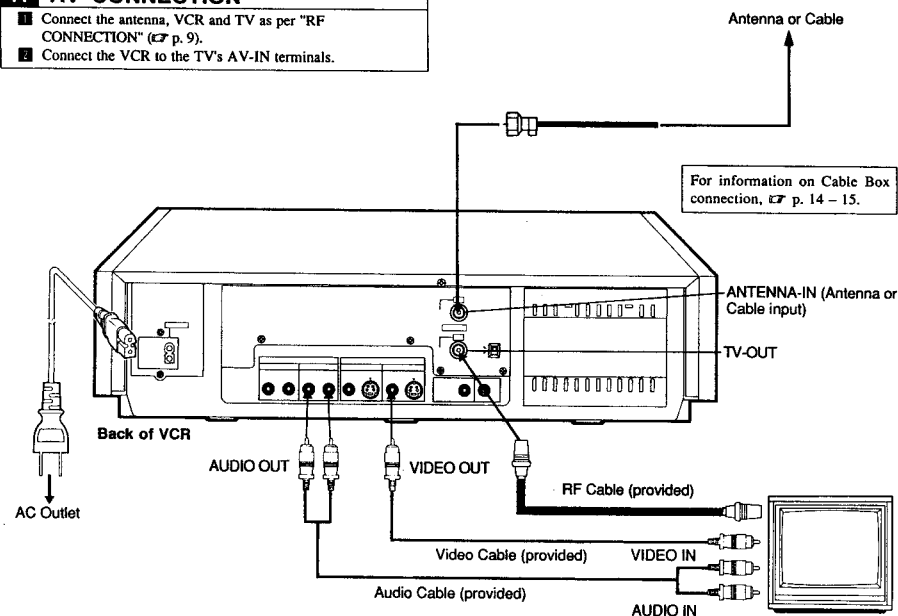
If you use a standard TV, do not set the on-screen RF SW(itch) to OFF because this will stop your VCR from sending signals through the RF Cable to your TV (channel 3 or 4), and the VCR's signals will not be viewable on the TV screen. Leave the on-screen RF Switch setting ON.

Or...

IF YOU HAVE A TV SET WITH AV INPUT CONNECTORS

A AV CONNECTION

- 1 Connect the antenna, VCR and TV as per "RF CONNECTION" (p. 9).
- 2 Connect the VCR to the TV's AV-IN terminals.



B ADJUST RF SETTING IF NECESSARY

Even if your TV has AV input connectors, it is necessary to also connect your VCR and TV using the RF cable if you ever wish to watch a program while recording another (p. 25).

If you use a TV with AV inputs, you can set the on-screen RF SW(itch) to OFF (p. 37). Since the VCR stops sending out RF signals to your TV, you can view channels using the TV's tuner with no interference from the RF connection. Your VCR's signals are sent to your TV through the AV connections, and will be viewable on a special "channel" meant for reception of AV signals (check your TV instruction manual for details).

ATTENTION

This VCR is equipped with a Family Message Auto Demo mode.

When the **POWER** button is pressed for the first time after the VCR is plugged into an AC outlet, the VCR enters this mode and built-in "Family Messages" will be continuously displayed on the TV screen until any VCR control button is pressed (any button on the VCR, or any button on the remote control while the TV/VIDEO switch is set to VIDEO, except VOL.) p. 30.

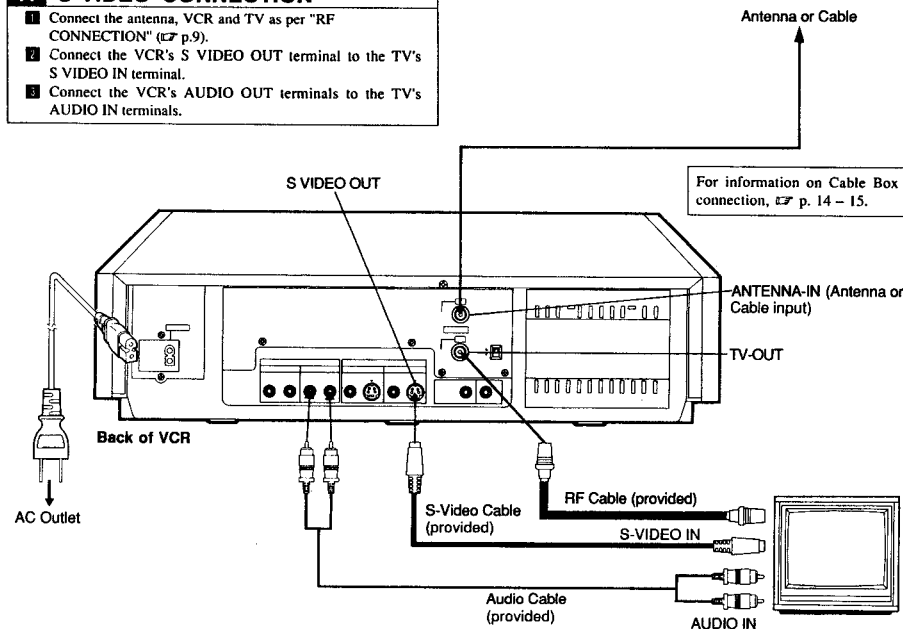
To engage the Auto Demo Mode manually, press the FAMILY MESSAGE button until automatic demo begins.

Or...

IF YOU HAVE A TV SET WITH S-VIDEO INPUT CONNECTORS

A S-VIDEO CONNECTION

- 1 Connect the antenna, VCR and TV as per "RF CONNECTION" (p. 9).
- 2 Connect the VCR's S VIDEO OUT terminal to the TV's S VIDEO IN terminal.
- 3 Connect the VCR's AUDIO OUT terminals to the TV's AUDIO IN terminals.



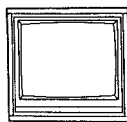
NOTES:

- To make the most of Super VHS picture performance, we recommend you use the S-VIDEO connection.
- To operate the VCR with your TV using the S VIDEO connection, set your TV to the AV mode.

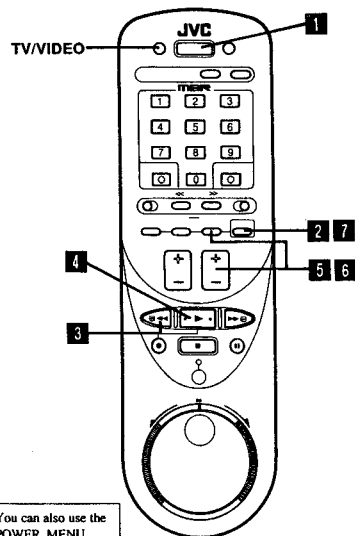
Setting Up Your VCR (cont'd)

Setting your VCR's clock

Since your VCR bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results.



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



You can also use the POWER, MENU, REW, PLAY, FF, SET and SELECT buttons on the VCR.

A TURN ON THE VCR

- Press POWER.
 - If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.
 - If various "Family Message" displays appear on your TV screen, press any button **except** VOL, TV or POWER to stop them. (See p.10, 30.)

B ACCESS THE ON-SCREEN MENU

- Press MENU.
 - The Initial Set screen will appear.
- To change the on-screen language to Spanish, press ◀ (Rewind).
- To change the on-screen language to French, press ▶ (Play).
- Press ▶▶ (Fast Forward) to change back to English.

INITIAL SET
DATE 2/24/93 WED
TIME 10:30 AM
ENGLISH : PRESS (FF)
ESPAÑOL : PRESIONE (REW)
FRANÇAIS : APPUYEZ (PLAY)
PRESS (SELECT/SET)
PRESS (MENU) TO END

C INPUT THE MONTH/DAY/YEAR/TIME

- Press SET to set the month, and then press SELECT.
- Repeat step 5 to set the day, year and time (making sure that AM or PM is correct).
- The day of the week will automatically appear.

INITIAL SET
DATE 1/ 1/00 SUN
TIME 12:00 AM
ENGLISH : PRESS (FF)
ESPAÑOL : PRESIONE (REW)
FRANÇAIS : APPUYEZ (PLAY)
PRESS (SELECT/SET)
PRESS (MENU) TO END

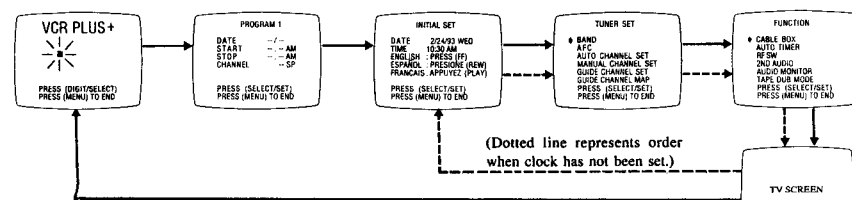
TO MAKE CORRECTIONS

Press SELECT so that the item you want to change blinks. Reset that item. Continue to step D.

D START THE CLOCK

- Press MENU.
 - The day of the week will automatically appear.

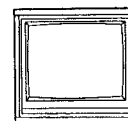
After the clock has been set, the on-screen menus will change in the following order when the MENU button is pressed. When the MENU button on the VCR is pressed, the VCR PLUS menu will not be displayed.



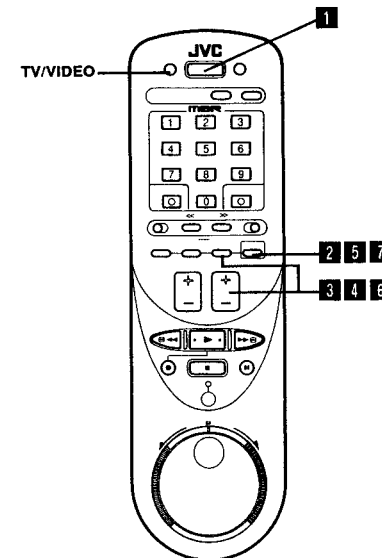
FOLLOW INSTRUCTIONS ON THIS PAGE
OR ON P. 14 - 15 DEPENDING ON YOUR
CABLE BOX.

Setting your VCR's tuner (if you don't use a Cable Box)

Follow these steps if you do **not** use an external Cable Box to receive cable stations. If you use a Cable Box, skip this procedure and see p.14. The Auto Set feature introduced here automatically assigns receivable channels in your area to the CHANNEL UP/DOWN buttons and skips the others so you won't have to go through any "blank" channels to get to the one you want.



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



You can also use the POWER, MENU, SET and SELECT buttons on the VCR.

A TURN ON THE VCR

- Press POWER.
 - If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.

B ACCESS THE ON-SCREEN MENU

- Press MENU until the Tuner Set menu appears.
- Press SET to move the cursor to "BAND", and then press SELECT.

TUNER SET
BAND
AFC
AUTO CHANNEL SET
MANUAL CHANNEL SET
GUIDE CHANNEL SET
PRESS (SELECT/SET)
PRESS (MENU) TO END

C SELECT THE BAND

- Press SET to choose "TV" or "CATV".
 - The BAND select feature has 2 settings (TV and CATV). Set to TV if your antenna provides only UHF and VHF channels. Set to CATV if your antenna system is a cable TV line.
- Press MENU.

BAND
TV
CATV
PRESS (SET) FOR CHOICE
PRESS (MENU) TO END

D START AUTO SET

- Press SET to move the cursor to "AUTO CHANNEL SET", and then press SELECT.
 - Auto set is in progress and "SCANNING..." is displayed.
 - When available channels are scanned, "ADD" will be displayed on the screen.
 - When unavailable channels are skipped, "SKIP" will be displayed.
 - After completion of auto set, the lowest tuned-in channel and "SCAN COMPLETED" are displayed.
 - If "SCAN COMPLETED — NO SIGNAL —" is displayed, check the band setting and connections, and start again. (See p.9 - 11.)

TUNER SET
BAND
AFC
AUTO CHANNEL SET
MANUAL CHANNEL SET
GUIDE CHANNEL SET
PRESS (SELECT/SET)
PRESS (MENU) TO END

AUTO CHANNEL SET
(TV)
CH 5 ADD
SCANNING ...
PRESS (MENU) TO END

If you purchase a Cable Box later on, be sure to follow the instructions on p.14 for proper set-up.

E RETURN TO THE TV SCREEN

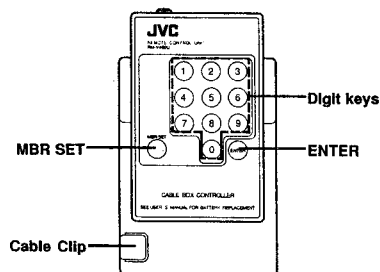
- Press MENU as many times as necessary.

Now go to p.16 "Setting-up the VCR Plus+ feature".

Setting Up Your VCR (cont'd)

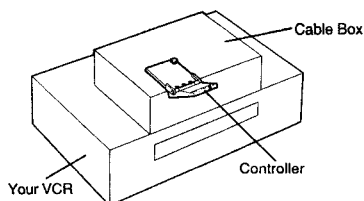
Setting your VCR's tuner and Cable Box Controller

Follow these steps if you use an external Cable Box (descrambler) to receive cable stations. When properly set-up, the Multi-System Cable Box Controller will automatically switch channels on your Cable Box so you can timer-record two or more cable TV stations. It works for Cable TV shows that have been programmed using VCR Plus+ (p. 20) or On-Screen (p. 28) programming.

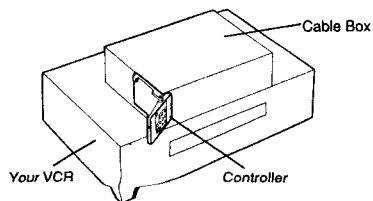


Suggested Locations

Attach to top of Cable Box, point Controller down towards Cable Box's remote sensor window.



Attach to side of Cable Box, point controller in towards Cable Box's remote sensor window.



A SET CABLE BOX BRAND

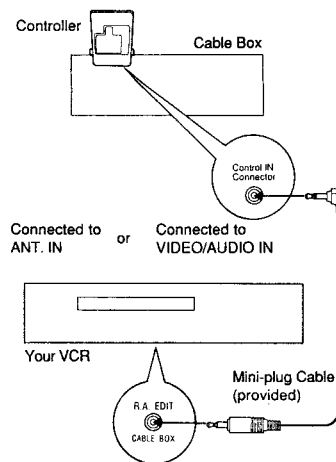
- 1 Turn on the Cable Box's power.
- 2 While holding down the MBR SET button, press the Digit keys corresponding to the code number for your Cable Box's brand. (See list below.)
- 3 Press the Digit keys to see if your Cable Box's channel will change.
 - If the channel doesn't change, try pressing ENTER after the Digit keys.
 - If the brand has more than one code number listed, repeat steps 2-3 until you reach the code that turns on your Cable Box's power.

B PLACE CONTROLLER IN A GOOD LOCATION

- 1 Find a location for the Controller which offers an unobstructed path to the Cable Box's remote sensor window; otherwise the Controller's infrared beam will not be able to reach and control your Cable Box.
- Press the Controller's Digit keys to make sure the channel changes.
- 2 Attach the Controller using the adhesive strips on the installation plate.

CABLE BOX BRAND LIST

BRAND	CODE	BRAND	CODE
ARCHER	52, 53, 54, 85, 86	PULSER	85, 86
CABLEVIEW	85, 86	RCA	25, 26, 27
CITIZEN	85, 86	REGAL	78, 79, 80
CURTIS	13, 14, 15, 16	REGENCY	51
DIAMOND	52, 53, 54	SAMSUNG	74, 75, 76
EAGLE	30, 31, 32, 33, 34, 35, 36, 37	SCIENTIFIC ATLANTA	13, 14, 15, 16
EASTERN	51	SL MARX	74, 75, 76
GC BRAND	85, 86	SPRUCER	25, 26, 27
GEMINI	55, 56	STARGATE	74, 75, 76, 85, 86
GENERAL ELECTRIC	87	SYLVANIA	70
GENERAL INSTRUMENTS	1, 2, 3, 4, 5, 6, 101	TEKNIKA	68, 69
HAMLIN	23, 24	TELECANTION	100
JERROLD	1, 2, 3, 4, 5, 6, 101	TELEVIEW	74, 75, 76
MACOM, HITACHI	57, 58, 59	TEXSCAN	28, 29
MAGNAVOX	43, 44, 45, 46, 47, 48, 49	TOCOM	62, 63, 64, 65, 66
MOVIE TIME	71, 72, 73	UNIKA	52, 53, 54, 85, 86
NSC	71, 72, 73	UNIVERSAL	81, 82, 83, 84
OAK	17, 18, 19, 20, 21, 22	VIDEOWAY	9, 10, 11, 12
PANASONIC	25, 26, 27	VID TECH	89
PHILIPS	38, 39, 40, 41, 42	VIDTER	89
PIONEER	7, 8	VIEWSTAR	20, 21, 22, 33, 34, 35, 36, 37
		ZENITH	9, 10, 11, 12



C CONNECT CABLE BOX TO VCR

If your Cable Box has VIDEO OUT/AUDIO OUT connectors...

- 1 Connect them to the VIDEO IN and AUDIO IN connectors of your VCR.

If your Cable Box **does not** have VIDEO OUT/AUDIO OUT connectors...

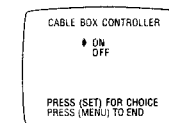
- 2 Connect the Cable Box's antenna output terminal the ANT. IN (Antenna) terminal of your VCR.
- Refer to the Cable Box's instruction manual for more information.
- Optional cables may be required.

D CONNECT CONTROLLER TO VCR

- 1 Connect the Cable Box Controller's Control IN connector to your VCR's CABLE BOX terminal using the supplied mini-plug cable.
- Fasten the mini-plug in place with the installation plate's cable clip.

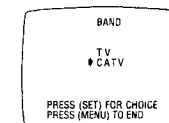
E SET "CABLE BOX CONTROLLER" TO ON

- 1 Press MENU until the Function menu appears (p. 12).
- 2 Press SET to move the cursor to "CABLE BOX", and then press SELECT.
- 3 Press SET to choose "ON".
- 4 Press MENU as many times as necessary to exit.



F START AUTO CHANNEL SET

- 1 Turn on the Cable Box's power.
- 2 Press MENU until the Tuner Set menu appears (p. 12).
- 3 Press SET to move the cursor to "BAND", and then press SELECT.
- 4 Press SET to choose "CATV".
- 5 Press MENU.
- 6 Press SET to move the cursor to "AUTO CHANNEL SET", and then press SELECT.
- If the Cable Box is connected to your VCR's ANT IN terminal, channel 3 or 4 will become the only active channel on your VCR; this is normal. All of your Cable Box's channels will be receivable through channel 3 or 4 on your VCR.
- If the Cable Box is connected to your VCR's VIDEO IN and AUDIO IN connectors, "SCAN COMPLETED—NO SIGNAL—" will be displayed and "AU" (Auxiliary input) will become the only available channel on your VCR; this is normal. All of your Cable Box's channels will be receivable through "AU" (channel "0") on your VCR.



NOTES:

- Although the provided Multi-System Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.
- If your cable box does not respond to any of the codes, your VCR is not able to change its channels during timer-recordings. For this type of cable box, always remember to leave it turned on and tuned to the channel you want to record before the timer-recording is programmed to start. Please contact your cable company about the possibility of exchanging your current cable box with one that is compatible with the VCR.
- If your cable box cannot be controlled by a remote control, your VCR will not be able to change its channels during timer-recording. For this type of cable box, turn it on and select the channel you want to record before the timer-recording is programmed to start.

Now go to p. 16 "Setting-up the VCR Plus+ feature".

Setting Up Your VCR (cont'd)

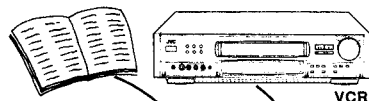
Setting-up the VCR Plus+ feature

Depending on the broadcast stations that are receivable in your area, or the cable stations offered by our cable supplier, you may have to make certain changes in your VCR's "Guide Channel Set" menu to get proper results. Please read on and find out what you need (and don't need) to do.

Make sure that you have already...

- set the VCR's clock
- set the VCR's tuner.

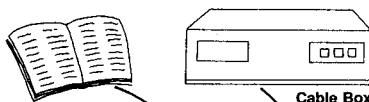
(If NOT using Cable Box)



Example of non-matching channels

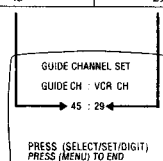
Broadcast Station	VCR Plus+™ Assigned Guide Channel	The channel your VCR receives the station on
WNYB (TBN)	67	49
WSBK Boston, MA	15	38
WXTV Paterson, NJ	12	41
WNUJ (Ind.)	6	47
WEDW Bridgeport, CT	14	49
WLIG Riverhead	10	55
WFXV (FOX)	33	28

(If using Cable Box)



Example of non-matching channels

Cable Station	VCR Plus+™ Assigned Guide Channel	The channel your Cable Box receives the station on
WNUJ (Ind.)	6	8
WLW (PBS)	21	34
Music Television	48	20
Cable News Network	42	27
Home Box Office	33	28
Cinemax	45	29



Then..

A COMPARE CHANNEL NUMBERS

Most TV listings will have a chart indicating the "Guide Channel" number that each TV station has been assigned for purposes of VCR Plus+™ programming. Check in your TV listing and see whether that number is the same as the channel number you receive that station on with your VCR or Cable Box.*

If the numbers match, you don't have to do anything. You can go directly to "Timer-Recording with VCR Plus+™" p.20.

If there are stations where the numbers are different, and you want to be able to timer-record them, you will have to "tell" the VCR about the mismatch. Continue to step B.

If there are stations where the numbers are different, but you don't want to timer-record them, you can go directly to "Timer-Recording with VCR Plus+™" p.20.

*SPECIAL NOTE FOR CABLE SUBSCRIBERS

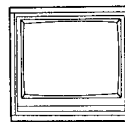
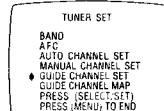
- In many instances, cable TV stations have VCR Plus+™ Guide Channel numbers that DO NOT match the actual channel number the station is received on. Check your TV listing, or check with your cable supplier for details.
- In many instances, normal broadcast TV stations can be viewed on cable. Check your TV listing, or check with your cable supplier for details.

B TURN ON THE VCR

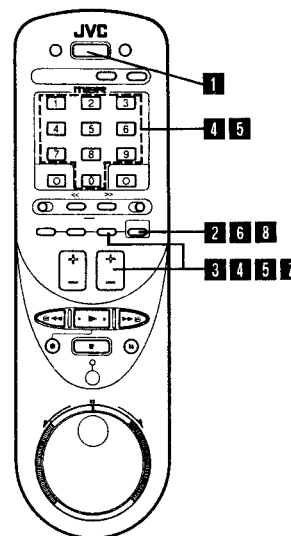
- If the VCR is off, press POWER to turn it on.
- If watching on channel 3 or 4, press TV/VIDEO to select the video mode. The VCR's VIDEO indicator will light.

C ACCESS THE ON-SCREEN MENU

- Press MENU until the Tuner Set menu appears.
- Press SET to move the cursor to "GUIDE CHANNEL SET", and then press SELECT.
- The Guide Channel Set screen will appear.

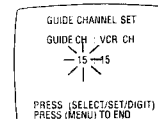


POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)



D INPUT THE GUIDE CHANNEL

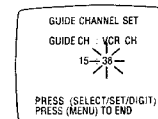
- Press SET or the Digit keys to input the Guide Channel number (as shown in TV listing or this manual), and then press SELECT.



E INPUT THE RECEIVING CHANNEL

If you don't use an external Cable Box...

- Press SET or the Digit keys to input the channel number your VCR receives the station on, and then press SELECT.

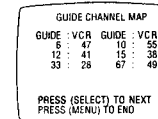
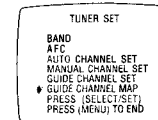


If you use an external Cable Box...

- Press SET or the Digit keys to input the channel number your Cable Box receives the station on, and then press SELECT.
- If there are other GUIDE CH numbers which don't match with the VCR CH numbers, input the changes by repeating steps D - E.

F CHECK THE GUIDE CHANNEL MAP

- Press MENU once to go back to the Tuner Set menu.
- Press SET to move the cursor to "GUIDE CHANNEL MAP", and then press SELECT.
- A screen with GUIDE CH numbers (in ascending order) with their corresponding VCR CH numbers will be displayed. Check to make sure your entries are correct.
- If there are more than 10 entries, press SELECT to display the 11th and higher entries.

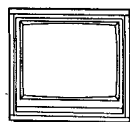


G RETURN TO THE TV SCREEN

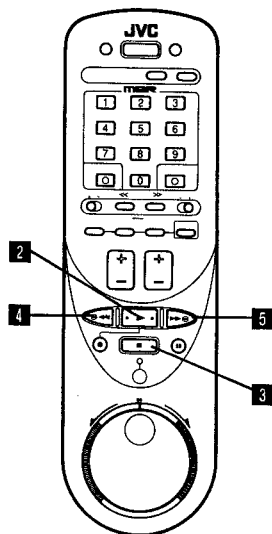
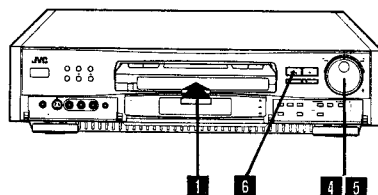
- Press MENU as many times as necessary.

▶ Playing A Tape

The easiest, most basic operation possible with your VCR is tape playback. Already-recorded signals on a video tape are read by your VCR and displayed on your TV just like a TV program.



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



A LOAD A CASSETTE

- 1 Insert a cassette with its window side up, and label side facing you. Press gradually on the middle of the cassette until the VCR pulls the cassette in.
- The VCR power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

- 2 Press ► (Play).

C TO STOP PLAYBACK

- 3 Press ■ (Stop).

D TO REWIND OR FAST-FORWARD

- 1 Press ◀◀ to rewind the tape (or turn the VCR Shuttle ring to the left and release it).
- 2 Press ▶▶ to fast-forward the tape (or turn the VCR Shuttle ring to the right and release it).
- Press ■ to stop the tape.

E TO EJECT THE TAPE

- 4 Press the VCR's ■/▲ (Stop/Eject) button.

To check the picture while rewinding or fast-forwarding

This "Open Search" function lets you visually check how far you have rewound or fast-forwarded the tape.

USING THE REMOTE CONTROL

During Rewind...

- 1 Press REW and hold it down. The picture will be visible on the TV screen.
- 2 Release REW when you're done checking.

During Fast-Forward...

- 1 Press FF and hold it down. The picture will be visible on the TV screen.
- 2 Release FF when you're done checking.

USING THE VCR'S SHUTTLE RING

During Rewind...

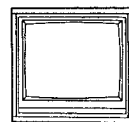
- 1 Turn the shuttle ring fully to the left. The picture will be visible on the TV screen.
- 2 Release the shuttle ring when you're done checking.

During Fast-Forward...

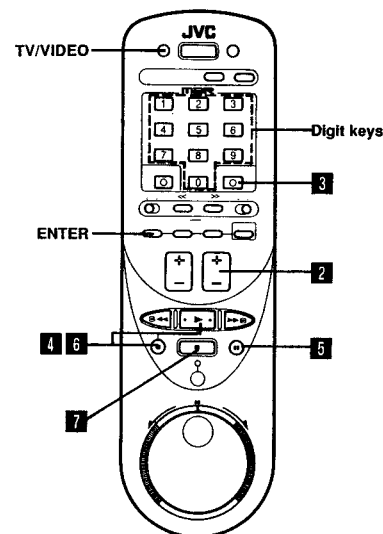
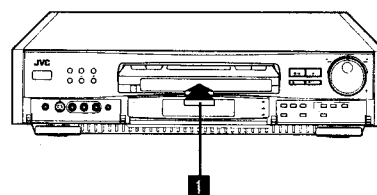
- 1 Turn the shuttle ring fully to the right. The picture will be visible on the TV screen.
- 2 Release the shuttle ring when you're done checking.

● Recording On A Tape

TV signals being received by the VCR's built-in tuner can be recorded onto a video tape. This is realtime video recording.



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



A LOAD A CASSETTE

- 1 Insert a cassette with the safety tab in place.
- The VCR power will come on automatically.
- If watching on channel 3 or 4 be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

B CHOOSE A PROGRAM

- 2 Press CH(annel) +/- (or the digit keys followed by ENTER) to select the channel you wish to record.
- Even if you don't press ENTER, the channel will automatically be changed in about 2 seconds.

C SET THE TAPE SPEED

- 3 Press SP/EP.

D TO START RECORDING

- 4 Press ● (Record) and ► simultaneously.

E TO PAUSE RECORDING

- 5 Press II.
- 6 Press ► to resume recording.

F TO STOP RECORDING

- 7 Press ■.

To watch a program while recording another

During Recording...

- 1 Press TV/VIDEO. The VCR's VIDEO indicator and the TV broadcast being recorded will disappear.
- 2 Use the channel controls on the TV to select the other channel you wish to view.
- The program selected with the TV channel controls will appear on the TV screen while the one selected with the VCR channel controls will be recorded on the tape.

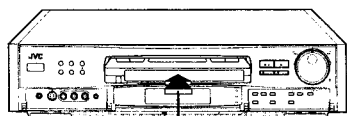


Timer-Recording with VCR Plus+™

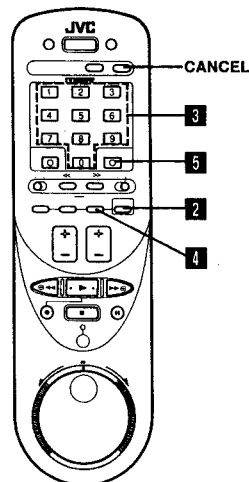
Your video recorder is equipped with the VCR Plus+™ programming system. This programming system greatly simplifies timer programming because you won't have to enter all the data that is usually necessary (such as date, start and stop time, and channel). Simply key-in the PlusCode™ number for the TV program you wish to record (in most TV listings) and the VCR's timer is programmed. (For On-Screen Timer Programming without VCR Plus+™ see p.28.)

VCR Plus+™ programming is not possible unless you have already....

- set the VCR's clock
- set the VCR's tuner
- made necessary changes in the Guide Channel Set screen.



1

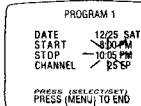


CANCEL

TO MAKE CHANGES IN THE SETTINGS

You can delay a program's stop time or make other such "revisions" in the settings.

- After step D, press SELECT.
- Press SELECT to move to the setting you wish to change, so that it blinks.
- Press SET to make the change.
- Return to step E.



A LOAD A CASSETTE

- Insert a cassette with the safety tab in place.
 - The VCR power will come on automatically.

B INPUT THE TV PROGRAM'S CODE NUMBER

- Press the remote control's MENU button.
 - The "VCR PLUS+" input screen will be displayed.
- Press the Digit keys to enter the PlusCode™ number for the TV program you wish to record.
 - To make corrections, press CANCEL and re-input with Digit keys.

VCR PLUS+



PRESS (DIGIT/SELECT)
PRESS (MENU) TO END

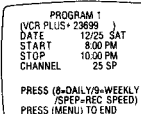
VCR PLUS+



PRESS (DIGIT/SELECT)
PRESS (MENU) TO END

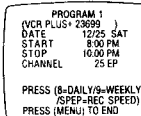
C CHECK FOR CORRECTNESS

- Press SELECT.
 - The settings for the PlusCode™ number you just entered will be displayed.
 - If the settings are incorrect and do not match the program you wish to record, press CANCEL and, after pressing MENU three times, re-input the PlusCode™.



D SELECT THE TAPE SPEED

- Press SP/EP.



"ERROR" WARNING

If the PlusCode™ you input is incorrect, "ERROR" may appear on the screen to advise you of the error. This happens when the code is for a program which has already passed. "ERROR" is displayed for about 4 seconds and returns to the input screen (step B).

VCR PLUS+



23699
— ERROR —
PRESS (DIGIT/SELECT)
PRESS (MENU) TO END

E RETURN TO THE TV SCREEN

- Press MENU. (Leave AUTO TIMER "OFF" for now.)
- Press MENU again.

F SET TO TIMER MODE

- Press TIMER.
 - The VCR will enter the timer mode and power will go off.

For AUTO TIMER and other timer programming features, see p.27.
For other error indications, see p.39.

To Timer-Record Daily Serials

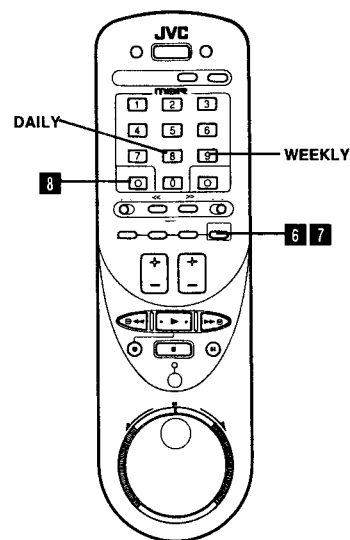
This function lets you set the recorder to timer-record at the same time every day, Monday through Friday.

- After pressing SELECT in step 4, press DAILY (Digit key 8). "DAILY" will appear.

To Timer-Record Weekly Serials

This function lets you set the recorder to timer-record at the same time on the same day every week.

- After pressing SELECT in step 4, press WEEKLY (Digit key 9). "WEEKLY" will appear.

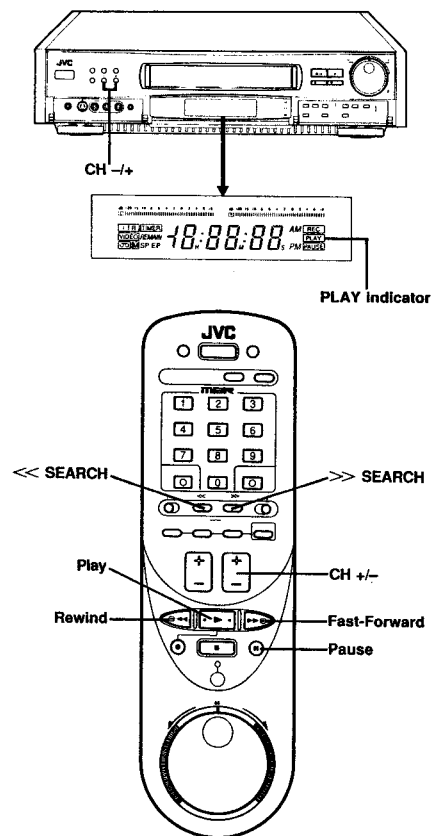


TO DISENGAGE THE TIMER

For safety, when AUTO TIMER is "OFF", your VCR disables all other functions while in the timer mode.

- To use your VCR, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

Special Features



For Playback

To view a still picture

During Playback...

- 1 Press Pause to view a still picture.
- 2 To advance the picture frame by frame, press Pause again.
- 3 Press Play to resume normal playback.

To view a slow/fast-motion picture

You can view pictures in slow motion (forward direction) or fast motion (either direction). The SEARCH buttons let you control the speed and the direction.

During Play or Still...

- 1 Press either SEARCH button. Tape will move in the corresponding direction.
 - The more times the button is pressed, the faster the playback picture will move.
 - To decrease speed, press the button for the opposite direction.
 - Press ► (Play) to resume normal playback.

Or...

During Playback...

- 1 Press Fast-Forward for forward fast-motion, or Rewind for reverse fast-motion.
- 2 Press Play to resume normal playback.
 - For short searches, keep Fast-Forward or Rewind pressed for more than 2 seconds. When released, normal playback will continue.

To adjust tracking manually

This overrides your VCR's automatic tracking.

During Playback...

- 1 Press the VCR's CH(annel) +/- buttons simultaneously to cancel auto tracking.
 - The remote control's CH +/- cannot be used for this purpose.
- 2 Press CH + or - to adjust tracking.
 - Press the VCR's CH +/- simultaneously to return to automatic tracking.

During Slow...

- 1 Simply press CH + or - to adjust tracking.

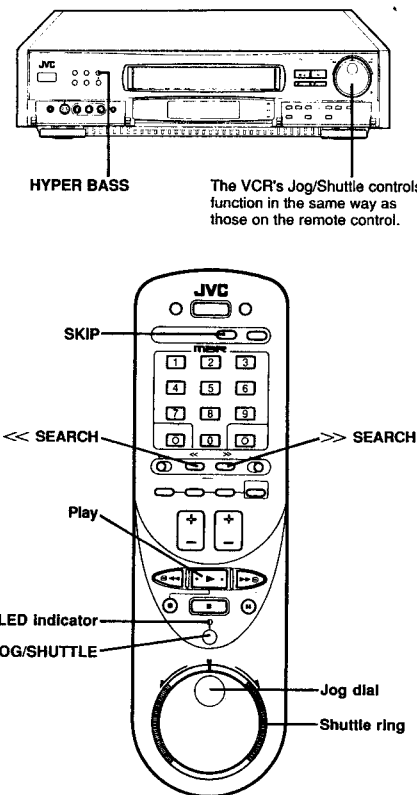
During Still...

- 1 Press CH + or - to remove vertical jitter.

To play the whole tape repeatedly

During Playback...

- 1 Press Play for more than 5 seconds, and release.
 - The "PLAY" indicator on the VCR panel will blink slowly.
 - The tape will be played 20 times automatically, and then stop.



To find the beginning of a recording

Index Search gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording.

During Stop...

- 1 Press SEARCH << or >>. "INDEX-1" or "INDEX 1" will be displayed and search will begin in the corresponding direction.
- 2 If you wish to access index codes 2 through 9, press SEARCH << or >> repeatedly until the correct index number is displayed.
 - When the specified index code is found, playback will start automatically.

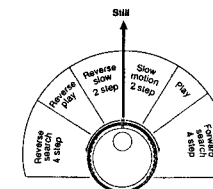
For Playback (cont'd)

To view jog/shuttle special effects

You can view pictures in slow to fast motion, or frame-by-frame.

During Still or Playback...

- 1 Press JOG/SHUTTLE.
 - The LED indicator will light.
 - Not necessary when using the VCR's Jog/Shuttle.
- 2 Turn the outer ring (Shuttle) to the right for forward slow motion and search.
 - Release the Shuttle for a still picture, or...
 - For fast-forward with a visible picture, turn the Shuttle all the way to the right and release it within 1 second.
- 3 Turn the outer ring (Shuttle) to the left for reverse play and search.
 - Release the Shuttle for a still picture, or...
 - For rewind with a visible picture, turn the Shuttle all the way to the left and release it within 1 second.



During Still or Playback...

- 1 Press JOG/SHUTTLE.
 - The LED indicator will light.
 - Not necessary when using the VCR's Jog/Shuttle.
- 2 Rotate the inner dial (Jog) clockwise or counterclockwise for jog control. The tape moves frame-by-frame at the speed with which the dial is rotated, in the direction the dial is rotated.

To resume normal playback, press the PLAY button.

Hyper-Bass Sound

Lower frequencies (bass sound) can be boosted instantly. You can make Hi-Fi VHS movie software, etc. sound more dynamic.

During Playback or Stop...

- 1 Press the HYPER BASS button on the VCR.
 - HYPER BASS indicator lights.
 - To turn it off, press HYPER BASS again.

To skip over unwanted sections

During Playback...

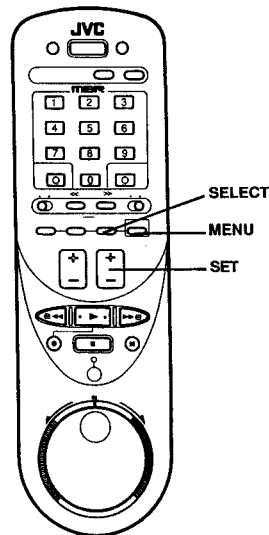
- 1 Press SKIP from 1 to 4 times.
 - This fast-motions through 30-sec. to 2-min. of tape.
 - Playback resumes automatically.
 - Press PLAY to cancel a Skip Search midway.



Special Features (cont'd)

For Playback (cont'd)

To select the soundtrack



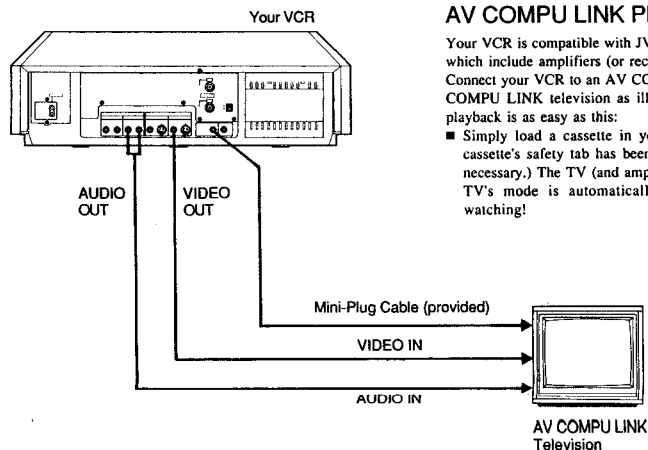
Your VCR is capable of recording two soundtracks (Hi-Fi and NORMAL) simultaneously, and playing back the selected soundtrack or two together.

During Playback or Stop:

- 1 Press MENU until the Function menu appears (p. 12).
- 2 Press SET to choose "AUDIO MONITOR", and then press SELECT.
- 3 Press SET to choose "HI-FI", "NORM", or "MIX".
 - HI-FI to listen to the Hi-Fi soundtrack.
 - NORM to listen to the normal soundtrack.
 - MIX to listen to both soundtracks combined. Select this setting when playing back edited tapes with insert edits or dubbed audio made on an appropriately equipped VCR.
- 4 Press MENU as many times as necessary to exit.

FUNCTION
CABLE BOX
AUTO TIMER
RF SW
2ND AUDIO
♦ AUDIO MONITOR
TAPE DUB MODE
PRESS (SELECT/SET)
PRESS (MENU) TO END

AUDIO MONITOR
HI-FI
♦ NORM
MIX
PRESS (SET) FOR CHOICE
PRESS (MENU) TO END

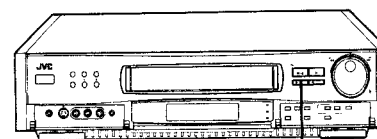


AV COMPU LINK Playback

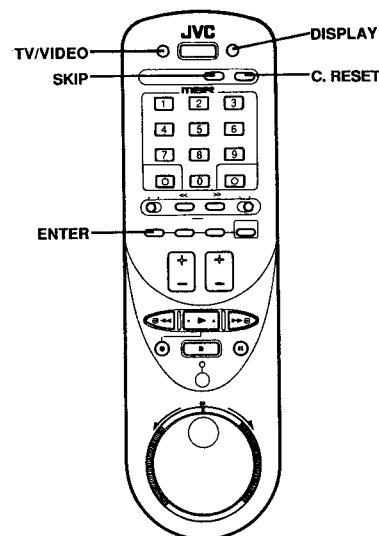
Your VCR is compatible with JVC's AV COMPU LINK components which include amplifiers (or receivers) and televisions.

Connect your VCR to an AV COMPU LINK amplifier and/or an AV COMPU LINK television as illustrated. AV COMPU LINK video playback is as easy as this:

- Simply load a cassette in your VCR and press PLAY. (If the cassette's safety tab has been removed, even this "touch" is not necessary.) The TV (and amplifier) turn on automatically and the TV's mode is automatically set to VIDEO; you're already watching!



Record

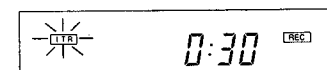


For Recording

To set the VCR to shut-off automatically (Instant Timer Recording)

During Recording...

- 1 Press the VCR's Record button. The "ITR" indication blinks and "0:30" appears, advising that power will switch off after 30 minutes.



- 2 Press Record again to delay the off-time by 30-minute increments (up to 9 hours).
 - This function is available only using the Record button on the VCR.
 - After the off-time is set, the display returns to the previously displayed mode (counter, channel, clock or remain).
 - You can check the time remaining before the VCR shuts off by pressing Record once; the remaining time is displayed for 5 seconds. (Pressing Record more than once will delay the shut-off time.)

To display the elapsed recording time

Before starting recording...

- 1 Press C. RESET.
 - The counter will be reset to "0h 00m 00s", and will show the exact elapsed time as the tape runs.
- 2 After starting recording, press ENTER at any time to check the elapsed time on the TV screen.
- 3 Press ENTER again to clear it from the screen.

To display the remaining tape time

- 1 Press ENTER. Counter information appears on the screen.
- 2 Press DISPLAY until "REMAIN" appears. Approximate remaining tape time appears on the TV screen and VCR display panel.
 - If recording is in progress, the remaining time display on the VCR changes back to the "REC" mode display after 5 seconds.
 - Pressing DISPLAY repeatedly changes the displayed indication (Counter → Date → Remain).
- 3 Press ENTER again to clear it from the screen.

To locate a blank portion of tape

During Stop....

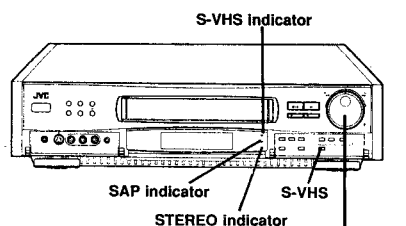
- 1 Press SKIP.
 - The recorder automatically fast-forwards or rewinds to the end of the recorded portion of tape, and stops.
 - The tape's remaining time is automatically displayed. Press DISPLAY to return to the realtime counter display.

NOTE:

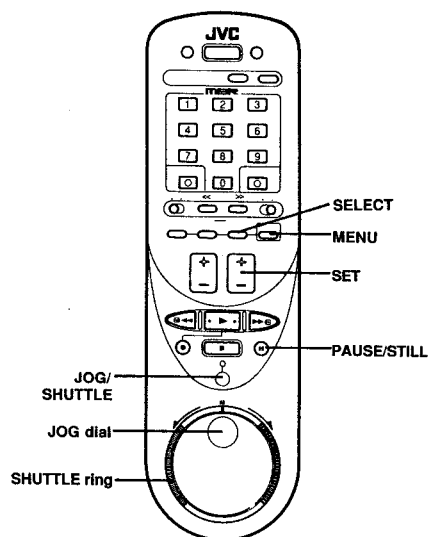
- Before you begin recording, playback the tape for a few seconds to make sure there is nothing located afterward.



Special Features (cont'd)



The VCR's Jog/Shuttle controls can also be used for retake.



To remove unwanted segments while recording

The Retake function lets you cut out unwanted parts of a TV program while you're recording it.

During Recording...

- 1 Press PAUSE/STILL.
- 2 Turn the JOG dial or SHUTTLE ring in either direction to locate the beginning of the unwanted part.
 - *When using the remote control only, first press the JOG/SHUTTLE button so that the LED indicator lights.*
 - Release the dial or ring to return to the Record-Pause mode.
- 3 Press PLAY when you wish to resume recording.

For Recording (cont'd)

S-VHS (Super VHS) and VHS

Your VCR can record in either S-VHS or VHS.

- To record in S-VHS, insert a cassette marked "S-VHS". The S-VHS indicator will light and the S-VHS recording mode is automatically selected.
- To record in VHS, insert a cassette marked "VHS". The VHS recording mode is automatically selected.
- You can also record in VHS on S-VHS cassettes. To do this, after inserting an S-VHS cassette, press the S-VHS button. The S-VHS indicator will go out.

Stereo and SAP (Second Audio Program)

Your VCR is equipped with an MTS decoder for reception of Multichannel TV Sound broadcasts.

- When a stereo program is being received, the STEREO indicator lights.
- When an SAP program (such as a bilingual broadcast) is being received, the SAP indicator lights.
- When a stereo program is accompanied by SAP audio, both indicators light.

To record stereo programs

Stereo programs are automatically recorded in stereo on the Hi-Fi audio track. No special operation is required. Simply follow the basic recording procedure.

- To listen to the stereo soundtrack while recording, set the on-screen AUDIO MONITOR to "HI-FI". *(p.24)*

To record SAP programs

- 1 Press MENU until the Function menu appears (*p.12*).

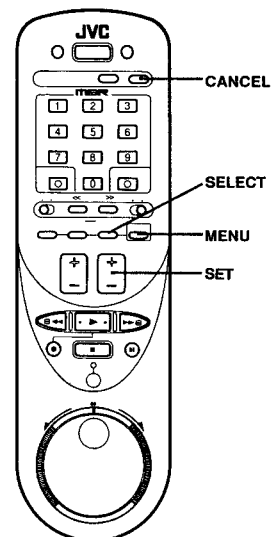
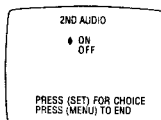
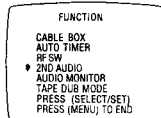
- 2 Press SET to choose "2ND AUDIO", and then press SELECT.

- 3 Press SET to choose "ON".
- 4 Press MENU as many times as necessary to exit.

Then follow the basic recording procedure.

- If an SAP program is received, the SAP audio will be recorded on both the Hi-Fi and the normal audio tracks. The main audio program will not be recorded.

- If a regular program (non-SAP) is received, the main audio will be recorded on both the Hi-Fi and the normal audio tracks.



For Timer-Recording

These features can be used for programs that were input using the VCR Plus+™ function (*p.20*) or the On-Screen Timer Programming function (*p. 28*).

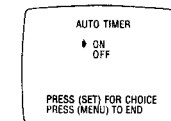
To use "Auto Timer"

What this feature does: Usually, the timer mode is not engaged unless the TIMER button is pressed. But with AUTO TIMER set to ON, the timer mode is automatically engaged when the VCR's power is turned off, and is disengaged whenever VCR power is turned on again.

- 1 During step "E" (*p.21*) or step "I" (*p.29*), press SET to choose "ON", and press MENU.

Or...

- 1 Press MENU until the Function menu appears (*p. 12*).
- 2 Press SET to move the cursor to "AUTO TIMER", and then press SELECT.
- 3 Press SET to choose "ON".
- 4 Press MENU as many times as necessary to exit.



To check and cancel programs

Make sure the timer mode is disengaged first. Then...

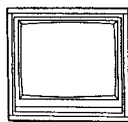
- 1 Press MENU twice (to access the Program Set screen).
- 2 Press SET to check through the programs in succession.

To cancel the program...

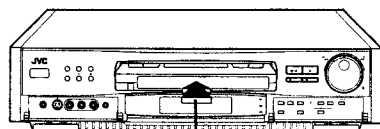
- 3 Press CANCEL.
 - Repeat steps 2 and 3 as necessary.
- 4 Press MENU as many times as necessary to exit.



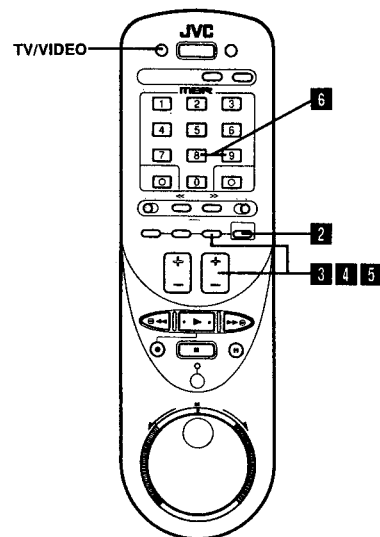
Special Features (cont'd)



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



1



You can also use the MENU, SET and SELECT buttons on the VCR.

For Timer-Recording (cont'd)

With the On-Screen Timer Programming function introduced here you can directly program the VCR's timer to record up to 8 TV shows, up to a year ahead. It's especially convenient when you want to timer-record programs while you're away from home for long periods of time (like for over a week), or for TV programs listed without a PlusCode™. **TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.**

To program the timer without VCR Plus+™

A LOAD A CASSETTE

- 1 Insert a cassette with the safety tab in place.
 - The VCR power will come on automatically. If watching on channel 3 or 4 be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

B ACCESS THE ON-SCREEN MENU

- 2 Press MENU twice.
 - The Program Set screen will appear.
 - If the clock has not been set, the Initial Set screen will appear. To set the clock, see p.12.

C SELECT A PROGRAM NUMBER

- 3 Press SET to move to a vacant program number, and then press SELECT.
 - Initially all programs are vacant, and the cursor is at program 1. So simply press SELECT.

PROGRAM 1
DATE ---:--
START ---:-- AM
STOP ---:-- AM
CHANNEL --- SP
PRESS (SELECT/SET)
PRESS (MENU) TO END

D INPUT THE DATE

- 4 Press SET to set the month, and then press SELECT.
- 5 Press SET to set the day, and then press SELECT.
 - The day of the week will automatically appear.
- 6 To record the program daily (Mon-Fri) press DAILY (Digit key 8). To record the program weekly press WEEKLY (Digit key 9).
 - "DAILY" or "WEEKLY" will appear on the screen.

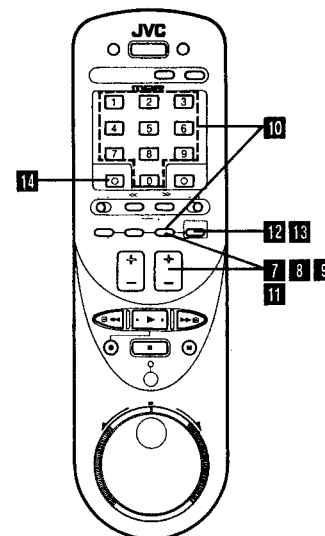
PROGRAM 1
DATE 2/28 SUN
START ---:-- AM
STOP ---:-- AM
CHANNEL --- SP
PRESS (SELECT/SET)
PRESS (MENU) TO END

"ERROR" WARNING

If the start time you input has already passed (i.e. is prior to the present date and time), the VCR will flash "ERROR" on the Program Set screen.

PROGRAM 1
ERROR
DATE 2/22 MON
START 12:30 AM
STOP ---:-- AM
CHANNEL --- SP
PRESS (SELECT/SET)
PRESS (MENU) TO END

Check if you've input the correct time and date. Remember: late night shows beginning at midnight or later must have the next day's date.



TO DISENGAGE THE TIMER

For safety, when AUTO TIMER is "OFF", your VCR disables all other functions while in the timer mode.

- To use your VCR, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

E INPUT THE START TIME

- 7 Press SET to set the hour (making sure that AM or PM is correct), and then press SELECT.
- 8 Press SET to set the minutes, and then press SELECT.

PROGRAM 1
DATE 2/28 SUN
START 12:00 PM
STOP ---:-- AM
CHANNEL --- SP
PRESS (SELECT/SET)
PRESS (MENU) TO END

F INPUT THE STOP TIME

- 9 Set the stop time in the same way as you set the start time in step E.

PROGRAM 1
DATE 2/28 SUN
START 12:00 PM
STOP 1:00 PM
CHANNEL --- SP
PRESS (SELECT/SET)
PRESS (MENU) TO END

G INPUT THE CHANNEL NUMBER

- 10 Press the Digit keys to enter the channel number, and then press SELECT.
 - If you use a Cable Box, enter the channel number your Cable Box receives the station on.

PROGRAM 1
DATE 2/28 SUN
START 12:00 PM
STOP 1:00 PM
CHANNEL 125 SP
PRESS (SELECT/SET)
PRESS (MENU) TO END

H SET THE TAPE SPEED

- 11 Press SET to choose SP or EP, and then press SELECT.
 - To input another program, repeat steps C - H. (You can set up to a maximum of 8 programs.)

PROGRAM 1
DATE 2/28 SUN
START 12:00 PM
STOP 1:00 PM
CHANNEL 125 EP
PRESS (SELECT/SET)
PRESS (MENU) TO END

I RETURN TO THE TV SCREEN

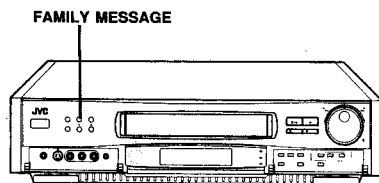
- 12 Press MENU. (Leave AUTO TIMER "OFF" for now.)
- 13 Press MENU again.

J SET TO TIMER MODE

- 14 Press TIMER.
 - The VCR will enter the timer mode and power will go off.

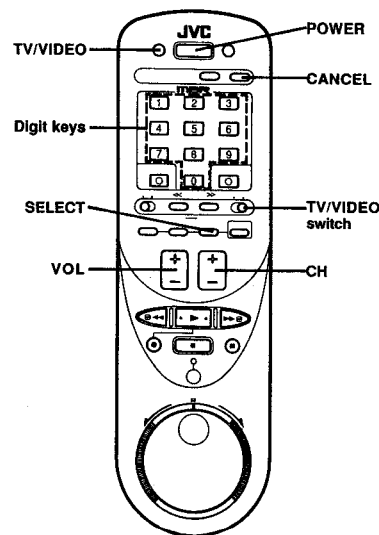
For AUTO TIMER and other timer programming features, see p.27. For other error indications, see p.39.

Special Features (cont'd)



Pre-set messages =
(blank)
PLEASE CALL:
PLEASE DON'T FORGET:
PLEASE PICK UP:
PLEASE START:
MEET ME AT:
I'M AT:
I'LL BE HOME BY:
REMEMBER, I LOVE YOU
HAPPY BIRTHDAY

Your input message =
Up to 20 characters long including spaces.



For Convenience

To leave a message on your VCR

STORING A MESSAGE IN MEMORY

Make sure your TV is on and tuned to the VCR's channel, then...

- 1 Press FAMILY MESSAGE on the VCR.
- 2 Press SET +/- to choose from the nine pre-set messages that are available.
- 3 Add your part of the message by pressing the Digit key to display the numeral or letter you need, and pressing SELECT to move to the next character position.
■ Example: By pressing the "1" key repeatedly, the following will be displayed:
A → B → C → 1 → (blank)
- 4 Press FAMILY MESSAGE.
■ The on-screen display disappears and the message is stored in memory.
■ The button blinks to show there is a message in memory.
■ The time that the message was input will also be memorized.

CALLING UP A MESSAGE

If the VCR is off...

- 1 Press POWER.

If the VCR is on...

- 1 Press FAMILY MESSAGE.
■ The message will be displayed on the TV screen. (TV power must be on and tuned to VCR's channel.)
■ If watching on channel 3 or 4 be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.
- 2 Return to the normal screen by pressing CANCEL (this erases the message from memory), or FAMILY MESSAGE (this keeps the message in memory).

To control a TV set with the VCR's remote

In addition to JVC remote control TVs, other TV brands (listed below) can also be controlled by setting the remote control to "TV". If your television is a JVC (Code 1), you don't have to set the TV code in step 2.

- 1 Set the TV/VIDEO switch to "TV".
- 2 While holding down the POWER button, press the Digit key corresponding to the code number for your TV's brand.
■ Now the following buttons on your remote control can be used to operate your TV set: POWER, VOL(VOLUME), CH(CHANNEL), TV/VIDEO, and the Digit keys.
- 3 To operate your VCR, set the TV/VIDEO switch back to "VIDEO".

TV BRAND NAME	CODE	TV BRAND NAME	CODE
JVC	1	SHARP	6
MAGNAVOX	2	SONY	7
DAEWOO	3	TOSHIBA	8
PANASONIC	4	ZENITH	9
RCA	5	HITACHI	0

For Convenience (cont'd)

To check the VCR's mode

AUTOMATIC INDICATION

- **Channel**
When the channel is changed, the new channel is displayed on the screen for 5 seconds.
- **Operation mode**
When the operation mode is changed, the new mode is displayed — RECORD (5 sec.), PLAY (5 sec.), FF/REW (5 sec., when engaged from Stop mode), RECORD PAUSE (for as long as Pause is engaged), and ITR **:*(5 sec.).
- **"Cassette Loaded" mark**
When a cassette is loaded, the mark is displayed for 5 seconds. It blinks when the VCR's EJECT button is pushed.

MANUAL RECALL

- 1 Press ENTER/OSD.
■ All indications corresponding to the current status are displayed for 5 seconds, leaving the counter information on the screen.
- 2 Press ENTER/OSD again to clear the display.

To reset the tape counter to zero

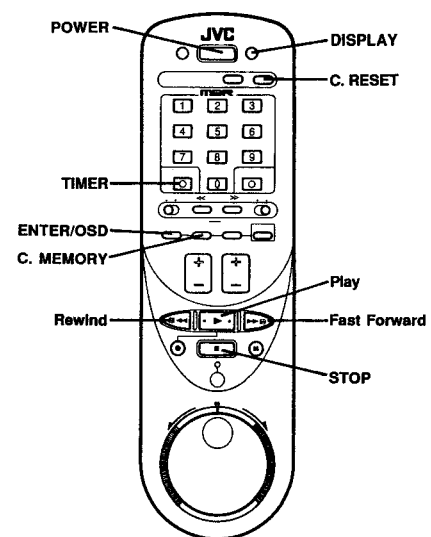
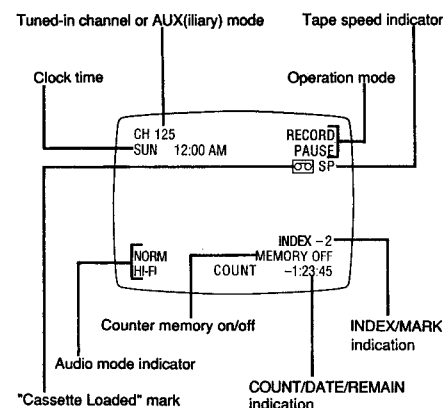
- 1 Press C. RESET.
■ Pressing DISPLAY repeatedly changes the VCR's displayed indication. (Counter reading → Channel* → Clock time → Remaining).
- *Channel is not displayed during playback.

To return to tape position zero

- During Playback...**
- 1 Press C. RESET at a point you wish to locate later.
■ The counter will read "0h 00m 00s".
 - 2 Press C. MEMORY.
■ Counter Memory mark is displayed.
 - 3 When you wish to return to that point, press STOP and then press Rewind.
■ The tape will rewind and stop at about "0h 00m 00s" automatically.
 - 4 To cancel the Counter Memory mode, press C. MEMORY.

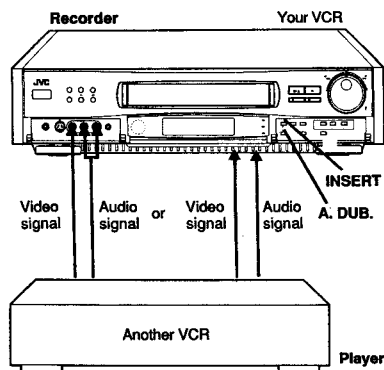
To automatically start the "next" function

- For automatic start of playback after the tape is rewind...**
- 1 Press Rewind.
 - 2 Press Play within 2 seconds.
- For automatic power off after the tape is rewind...**
- 1 Press Rewind.
 - 2 Press POWER within 2 seconds.
- For automatic timer standby after the tape is rewind...**
- 1 Press Rewind.
 - 2 Press TIMER within 2 seconds.
- If you want the "next function" to automatically start when the counter reads "0h 00m 00s" (instead of at the beginning of the tape), press C. MEMORY so that the counter memory "M" mark appears on the VCR display panel **before** pressing Rewind or Fast-Forward.





Special Features (cont'd)



FOR ASSEMBLE EDITING

Assemble editing adds one recorded scene to another in succession. To use your VCR as the recording deck...

- 1 Load the source tape in the player, and the recording tape in your VCR.
- 2 Select the recording speed (SP or EP).
- 3 Put your VCR in the Record-Pause mode.
- 4 Play back the source tape to search for a scene to be edited.
- 5 Press the recorder's PLAY button where you want to start editing.
- 6 Press the recorder's PAUSE button to stop editing.
- 7 Repeat steps 4 through 6 to continue editing. (Assemble Editing is also possible using your VCR as the playback deck.)

NOTES:

- Connections made to the front panel VIDEO and AUDIO inputs automatically override any rear panel VIDEO/AUDIO input connections. If you wish to edit with another machine connected to the rear input connectors, make sure that there is nothing connected to the front connectors.
- If connections are made to both the front VIDEO and S-VHS connectors, the S-VHS connection has priority.

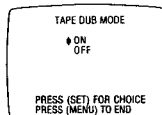
For Editing

To edit to or from another VCR

Your VCR can be used as either the recording deck or the source player when editing tapes.

PREPARATION

- 1 Connect the player's VIDEO OUT and AUDIO OUT connectors to the recorder's VIDEO IN and AUDIO IN connectors.
- 2 Press MENU until the Function menu appears (p. 12).
- 3 Press SET to choose "TAPE DUB MODE", and then press SELECT.
- 4 Press SET to choose "ON".
- 5 Press MENU as many times as necessary to exit.
- 6 Set the recorder's input mode to AUX.
 - With this VCR model, press the digit key "0". "AU" will appear instead of a channel number.



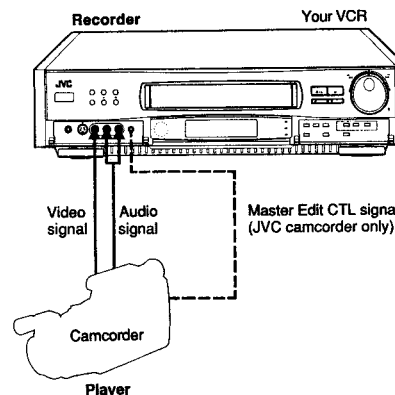
FOR INSERT EDITING

Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. Use your VCR as the recording deck.

- 1 Load the source tape in the player, and the recording tape in your VCR.
- 2 Play back the recording tape and engage the Still mode at the edit-in point (the beginning of the segment to be replaced).
- 3 Press INSERT.
 - Your VCR enters the Insert-Pause mode. (REC, PLAY and PAUSE light up on the FDP.)
 - The TV screen changes from the still picture to the input signal you are going to record.
- 4 Play back the segment of the source tape to be inserted.
- 5 Press PLAY.
 - Insert editing will start. (PLAY blinks and REC is displayed on the FDP.)
- 6 Press PAUSE to stop insert editing.
 - Do not press STOP to stop insert editing, otherwise the picture will be distorted at the switching point between the newly inserted and previously recorded pictures.

FOR AV INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time... In step 3 above, after you press INSERT, press A. DUB. also. (REC and PLAY blink and PAUSE lights up on the FDP.)



For Editing (cont'd)

To edit from a camcorder

Tape-to-tape editing is also possible using a camcorder (equipped with playback facility) as the player and your VCR as the recorder. In this case, the VCR's REMOTE PAUSE terminal can be used to accept Master Edit Control commands from the camcorder.

PREPARATION

- 1 Connect the camcorder's AV OUT connector to the VCR's front panel VIDEO IN and AUDIO IN connectors.
 - With a Super VHS camcorder, connect its S-OUT connector to the VCR's S-VHS connector.
 - With monaural camcorders, use your VCR's AUDIO L (MONO) connector.
- 2 Connect the AV output cable's mini-plug to the REMOTE PAUSE terminal of the VCR.
 - A JVC camcorder with the Master Edit Control System can be used as a video camera for direct recording onto the VCR's tape. Put the VCR in Record-Pause and use the camcorder's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.) See camcorder's instruction manual for operating procedures.
- 3 Press MENU until the Function menu appears (p. 12).
- 4 Press SET to choose "TAPE DUB MODE", and then press SELECT.
- 5 Press SET to choose "ON".
- 6 Press MENU as many times as necessary to exit.

OPERATION

- 1 Set the VCR's input mode to AUX by pressing digit key "0". "AU" will appear instead of a channel number.
- 2 Put the camcorder in the Play mode.
- 3 Put the VCR in the Record mode.

To add narration or music

Audio Dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack. Add your personal touch by recording commentary, etc.

PREPARATION

- 1 Connect a microphone to the MIC jack.
- 2 Set the VCR's input mode to AUX by pressing digit key "0". "AU" will appear instead of a channel number.

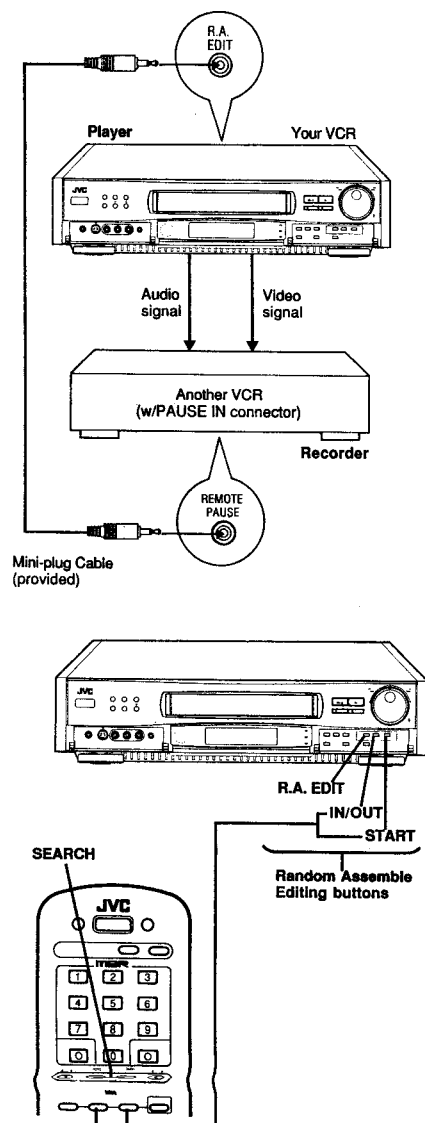
OPERATION

- 3 Start playback and engage the Still mode at the point from which you wish to start audio dubbing.
 - Turn the SHUTTLE ring in either direction to quickly locate the desired scene. Simply release the SHUTTLE ring, and the Still mode will be engaged automatically.
 - Then turn the JOG dial for more precise location of the audio dubbing start point.
- 4 Press A. DUB.
 - Your VCR enters the Audio Dubbing-Pause mode. (REC blinks, PLAY and PAUSE light up on the FDP.)
- 5 Press PLAY.
 - Audio dubbing will start. (REC blinks and PLAY is displayed on the FDP.)
- 6 Pressing PAUSE/STILL temporarily stops audio dubbing.
- 7 Press STOP to stop audio dubbing.

NOTE:

- After audio dubbing, the normal audio track remains selected. To hear the Hi-Fi tracks, select "Hi-Fi" p.24.

Special Features (cont'd)



For Editing (cont'd) Random Assemble Editing (R.A. Edit)

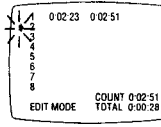
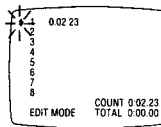
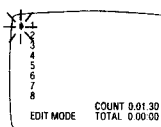
This function makes it easier to create edited videos when your VCR is used as the source player in combination with another JVC video deck which is equipped with a PAUSE (i.e. remote PAUSE IN) terminal. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified. (To R.A. Edit with another brand of VCR, see p. 36)

PREPARATION

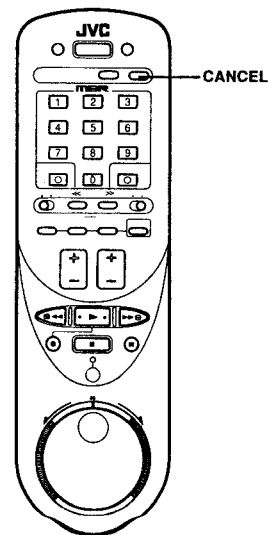
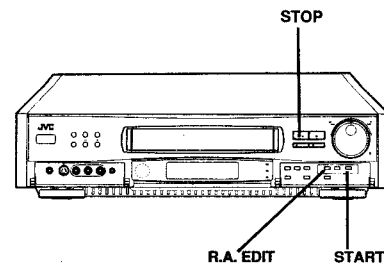
- 1 Connect your VCR's VIDEO OUT and AUDIO OUT connectors to the recording deck's VIDEO IN and AUDIO IN connectors.
- 2 Connect your VCR's R.A.EDIT connector to the recording deck's PAUSE connector.
 - If the recording deck does not have a PAUSE connector but has an R.A. EDIT connector, connect to the R.A. EDIT connector.
- 3 Turn both units on.
- 4 Engage the recorder's AUXiliary mode.

OPERATION

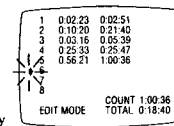
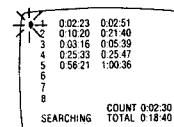
- 5 Insert a recorded cassette into your VCR.
- 6 Play back the tape in your VCR.
- 7 Press the R.A. EDIT button.
 - On-screen display is superimposed on the video playback.
- 8 Use the SEARCH buttons to search for the point where you want an edited scene to start, and press IN/OUT.
 - The cut-in point is registered in memory.
- 9 Use the SEARCH buttons to search for the point where you want the scene to end, and press IN/OUT.
 - The cut-out point is registered in memory.
 - The "TOTAL" reading displays the total running time of the edited scenes.
- 10 Specify additional scenes by repeating steps 8 - 9.



(Continued on next page.)

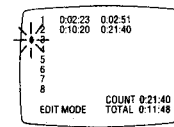


- 11 Insert a cassette (with safety tab intact) into the recording deck, and put the recording deck in the Record-Pause mode.
- 12 Press START.
 - The function begins automatic editing; all the specified scenes are copied to the recording deck in sequential order.
 - The on-screen display remains superimposed while your VCR searches for each scene (the blinking cursor points to the scene number presently being searched), and is not displayed while the scenes are being edited.
 - While a scene is being searched, the recording deck automatically enters the Record-Pause mode.
 - When Random Assemble Editing is finished, your VCR enters the Still mode, and the cursor blinks at the next available scene number.
- 13 Press R.A. EDIT again.
 - The on-screen display disappears.
- 14 Press STOP on both decks to end Random Assemble Editing.



TO MAKE CORRECTIONS

- During step 8 or 9, you can correct a cut-in or cut-out point using the remote control. Each time the CANCEL button is pressed, the immediately preceding point is cleared and can be reset.
- Example: Here, the cut-out point for "2" can be changed by pressing CANCEL once (to clear it) and re-setting it. By pressing CANCEL more times, you can back up to previous points for re-setting, but all points in between will be cleared in the process. (e.g. To reach the cut-out point for "1", the cut-in and -out points for "2" will be cleared.)



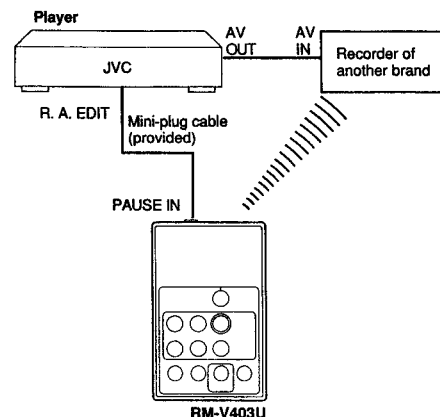


Special Features (cont'd)

VCR CODE LIST

VCR BRAND NAME	BUTTONS	VCR BRAND NAME	BUTTONS
AKAI	● ●	RCA	● ●
GE	● ●		● ●
	● ●		● ●
HITACHI	● ●	SANYO	● ●
	● ●		● ●
JVC A	● ●	SHARP	● ●
B	● ●		● ●
C	● ●	SONY	● ●
MAGNAVOX	● ●		● ●
	● ●		● ●
mitsubishi	● ●	TOSHIBA	● ●
	● ●		● ●
NEC	● ●	ZENITH	● ●
	● ●		● ●
PANASONIC	● ●		
	● ●		
	● ●		
	● ●		

Note:
Camcorders may react to digit keys when they are pressed without pressing MBR SET at the same time.



For Editing (cont'd)

To R.A.Edit with another brand of VCR

The provided RM-V403U Multi-Brand R.A.Edit Controller makes Random Assemble Editing possible from your JVC VCR to a recording deck which is...

- a VCR which is not a JVC, or
- a JVC VCR which does not have a PAUSE or R.A.EDIT connector.

SET THE RECORDING DECK'S BRAND

Turn the VCR's power off before starting

- Look in the VCR Code List for the brand and two-digit code number of the recording deck.
- While pressing MBR SET, input the code number using the controller's Digit keys.
 - The code is set and the recording deck's power automatically comes on.
 - If the recording deck's brand has more than one code, try the codes until you reach the one that turns on the deck's power.

PREPARATION

- Connect your VCR's VIDEO OUT and AUDIO OUT connectors to the recording deck's VIDEO IN and AUDIO IN connectors.
- Connect your VCR's R.A. EDIT connector to the controller's PAUSE IN connector.
- Engage the recorder's AUX(iliary) mode.

OPERATION

- Select the scenes you wish to edit by following the Random Assemble Editing operation instructions (p. 34, steps 5 - 10).
- Insert a cassette (with safety tab intact) into the recording deck, and put the recording deck in the Record-Pause mode.
 - The Record-Pause mode can be engaged using the recording deck's controls or the RECORD STAND-BY button on the RM-V403U Controller.
- Point the RM-V403U toward the recording deck's Infrared Sensor Window, and press the START button on your VCR or remote control. (p. 35, step 12).
- Press EDIT MODE.
 - The on-screen display disappears.
- Press STOP on both decks to end Random Assemble Editing.

NOTE:

- With some manufacturers' VCRs, pressing RECORDER STAND-BY may not place the recording VCR into the Record-Pause mode. In this case, use the controls on the recording VCR to put it in the Record-Pause mode.

Swap Editing

Your VCR is equipped with a SWAP terminal. When combined with a swap-control-capable VCR such as the JVC HR-S10000U, editing will be made easier. For more information about swap connection and swap control, refer to the instruction manual of the swap-control-capable VCR.

Advantages Of S-VHS VCRs

You can edit from VHS to S-VHS, from S-VHS to VHS, or from S-VHS to S-VHS.

- From VHS to S-VHS (VIDEO-VIDEO connection): Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS (VIDEO-VIDEO connection): Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS (S-VIDEO connection): All signals will be transferred without degradation.

For Other Purposes

To add a "skipped" channel to your VCR's tuner

- Press MENU until the Tuner Set menu appears (p. 12).
- Press SET to move the cursor to "AFC", and then press SELECT.
- Press SET to choose "SPCL".
- Press MENU.
- Press SET to move the cursor to "MANUAL CHANNEL SET", and then press SELECT.
- Input the channel number using the Digit keys.
- Press ADD to store the channel.
- Specify another channel number or press MENU as many times as necessary to exit.

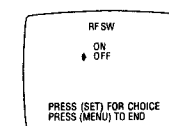
To delete an unwanted channel from your VCR's tuner

- Press MENU until the Tuner Set menu appears (p. 12).
- Press SET to move the cursor to "MANUAL CHANNEL SET", and then press SELECT.
- Input the channel number using the Digit keys or the CH +/- buttons.
- Press SKIP to delete the channel.
- Specify another channel number or press MENU as many times as necessary to exit.

To turn the RF switch off

DO NOT use this feature if your TV receives signals from your VCR on channel 3 or 4.

- Press MENU until the Function menu appears (p. 12).
- Press SET to move the cursor to "RF SW", and then press SELECT.
- Press SET to choose "OFF".
- Press MENU as many times as necessary to exit.
 - To turn the RF SW(itch) back on, press SET to choose "ON".
 - When RF SW(itch) is set to OFF, the "VIDEO" indicator on the VCR display panel does not light even when the remote's TV/VIDEO button is pressed.



To change the remote code

The A/B CODE switch is preset to the "A" position because your VCR is initially set to respond to A code signals. You can easily modify your VCR to respond to B code signals.

- Unplug the VCR's power cord from the AC outlet.
- Set the A/B CODE switch to "B".
- Plug the VCR's power cord back into the AC outlet. Do not use other remote controls at this stage.
- Turn the VCR power on using the remote control's POWER button. The VCR will now respond only to B code signals.

? If You Have Any Questions

Before requesting service...

Power or Tape Transport Problems?

Symptoms	Check points
No power is applied to the VCR.	Is the power cord disconnected? — Connect it.
Remote control does not operate the VCR.	- Did you load batteries? — Make sure they're loaded in the correct directions. - Are the batteries discharged? — Replace with fresh batteries.
Clock is functioning properly, but the VCR cannot be powered.	Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Cassette will not load. Gets stuck and is ejected a few seconds later.	Are you inserting the cassette correctly? Incorrect insertion causes the built-in safety mechanism to automatically eject the cassette. — Wait a few seconds and re-insert correctly. — Be sure to push the middle of the cassette's label side and be sure the window side is up.
Tape stops during rewind or fast-forward.	Is the C. MEMORY button pressed? — Press again to make "M" disappear from the counter display.
Tape will not rewind or fast-forward.	Is the tape already fully rewound or fast-forwarded? — Check the cassette.

Playback Problems?

Symptoms	Check points
Playback picture does not appear while the tape is running.	- If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (3 or 4). (ⓘ p.9) - If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Noise appears during visual search.	This is normal.
Noise appears during normal playback.	Is the automatic tracking mode engaged? — Try manual tracking. (ⓘ p.22)
Noise appears during slow playback.	Try manual tracking. (ⓘ p.22)
Playback picture is blurred or interrupted while TV broadcasts are clear.	Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer (ⓘ p.41).
Breaks are noticeable in Hi-Fi audio sound.	Is the automatic tracking mode engaged? — Try manual tracking. (ⓘ p.22)
Hi-Fi soundtrack cannot be heard.	Is "AUDIO MONITOR" on the FUNCTION menu set to "NORM"? — Set it to "HI-FI".

Recording Problems?

Symptoms	Check points
Recording cannot be started.	- Is a cassette loaded? - Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape (ⓘ p.5)
TV broadcasts cannot be recorded.	Has "AUX" been selected by mistake? — Set to the desired channel.
Tape-to-tape editing is not possible.	- Is the camcorder or VCR correctly connected? - Are all necessary power switches turned ON? - Has "AUX" been selected? — Set to "AUX". — If using a rear panel input connection, make sure nothing is connected to the front panel connectors (ⓘ p.32)
Camera recording is not possible.	- Is the camcorder correctly connected? - Has "AUX" been selected? — Set to "AUX".

Timer-Recording Problems?

Symptoms	Check points
Timer recording is not possible.	- Have you set the clock correctly and programmed the timer correctly? — Check once again. - Have you set-up the VCR? Make sure you have... — Set the VCR's tuner. - Made necessary changes in the Guide Channel Set screen. - Is the TIMER indicator displayed on the display panel? — If not, press the TIMER button to display the TIMER indicator.
Cable channels are not automatically switched during timer-recording.	- Make sure that... — The Multi-System Cable Box Controller is connected to your VCR's CABLE BOX Connector (ⓘ p.14). - The lithium battery has been inserted into the Controller (ⓘ p.8). - The CABLE BOX CONTROLLER menu is set to "ON" (ⓘ p.15). - The Cable Box's power is left ON during timer-recording. - Although the provided Multi-Brand Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.
Timer recording takes place, but the channel is always wrong.	Is CABLE BOX CONTROLLER set to "ON" even though you don't use an external Cable Box? — If you don't use a Cable Box, set CABLE BOX CONTROLLER to "OFF". (ⓘ p.15).
We moved, and now VCR Plus+™ doesn't work properly.	TV stations differ by locale. It may be necessary to re-set the VCR.
"PROGRAM FULL" is displayed on the VCR Plus+ input screen.	The VCR's timer memory is full; all 8 programs are used. — Cancel any unnecessary programs in the timer memory. (ⓘ p.27).
Timer programming screen does not function properly.	Is the ITR indicator displayed on the display panel? — Timer programming is not possible while an ITR is in progress.
"TIMER" and "⏰" on the display panel continue blinking.	There is no cassette in the VCR. — Insert a cassette with safety tab.
The cassette is automatically ejected. "TIMER" and "⏰" continue blinking.	The inserted cassette has its safety tab removed. — Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. (ⓘ p.5).
"TIMER" blinks for 10 seconds and the timer mode is cancelled.	There are no preset programs in memory, or they have all been incorrectly preset. — Check the programmed data and re-program it as necessary. Press TIMER again.
The cassette is ejected, power is shut off and "TIMER" and "⏰" are blinking.	This means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

Other Problems?

Symptoms	Check points
On-screen menu suddenly went blank and nothing can be displayed on the TV screen. (VCR is connected to your TV via RF Cable only, and receives video signals on channel 3 or 4.)	- Did you mistakenly turn the RF SW(itch) to "OFF"? — Press SET to turn it back "ON". - If the above doesn't work, unplug the power cord from the AC outlet, wait at least 10 seconds, and then plug it back into the outlet. Then press POWER to turn power back on, and press TV/VIDEO so that the VIDEO indicator lights. (Since this power interruption clears all Initial Set and Program information from the VCR's memory, it will be necessary to re-set the clock and any programs that may have been in the timer memory.) - Check for any loose connections.
Some channels are skipped over when scanning channels.	Those channels are preset to be skipped over. If you need them, restore them. (ⓘ p.13, 37)
Channel cannot be switched.	Is recording in progress? — Press the PAUSE button, change the channel, and press the PLAY button.
Snowy picture on screen when viewing TV programs while recording another program.	Is the VIDEO indicator lit? — Press the TV/VIDEO button so that the indicator extinguishes.
Remote control does not work with my TV.	Although the provided remote control unit is compatible with JVC televisions as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability. (ⓘ p.30)
"12:00 AM" is blinking.	This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the VCR's power plug was pulled from the AC outlet. To set the clock. (ⓘ p.12. If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

? If You Have Any Questions (cont'd)

Notes regarding...

Tuner Set

- Since receivable channels differ by locale, it will be necessary to reset your VCR's channels when you move to another location. Auto Channel Set is the easiest way to do this. [p.13](#) or [14, 37](#).

Playback

- If the end of the tape is reached during play or search, it is automatically rewind to the beginning and stops.
- The VCR automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable, use the CH +/- buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. [p.22](#).
- When a new tape is inserted, the recorder enters the automatic tracking mode automatically.
- There is no audio during search, slow, still, or frame-by-frame playback.
- Picture loss will occur when search, still, or frame-by-frame is attempted with LP-mode recorded tapes. Press Play to return to normal playback and restore the picture.
- Although the HYPER BASS button lights when pressed, its effects cannot be heard when playing monaural tapes or when Audio Monitor is set to NORM. [p. 24](#).
- You do not have to set to NORM when playing back tapes with normal soundtrack only.
- When MIX is selected, both "HI-FI" and "NORM" appear on the TV screen when the OSD button is pressed.

Recording

- To start recording with the VCR's Record button, press it once on its own. Pressing Record more than once activates Instant Timer Recording. [p.25](#).
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The VCR automatically stops when record-pause continues for more than 5 minutes.
- If the end of the tape is reached while recording, it is automatically rewind to the beginning and stops.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- The channel cannot be changed while recording is in progress. To change the channel, press Pause, then change the channel.
- With Retake, rainbow noise may occur in the rewind and re-recorded section.
- The Remaining Tape Time is calculated based on the tape speed (SP or EP) being used. The indicated remaining time is only approximate.
- Press PLAY or STOP to cancel Index Search or Blank Search before completion.
- An index code is not placed on the tape when recording is paused and then resumed.
- If the end of the tape is reached during Index Search, the mode is cancelled and the tape is rewind to the beginning.
- If the end of the tape is reached during Blank Search, the tape stops and "REMAIN 0:00" is displayed.
- When a fully recorded tape is used for re-recording new material, Blank Search can be used to detect the end of the new material.

Timer-Recording

- When timer-recording is successfully completed, the VCR power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the VCR's built-in clock, the clock's time must be accurate for correct timer-recording results.
- When you program the timer while viewing a program or a tape, the TV screen will show the on-screen menu but the audio will continue to be heard.
- You can also program the timer while the VCR is recording; the on-screen menu will not be recorded on tape.
- When timer-recording cable channels received through a Converter Box, be sure to keep the Converter Box set to ON.

Special Effects Playback

- If noise bars appear during slow motion, correct using manual tracking. [p.22](#).
- During multi-speed search, some noise bars will appear.
- If the Shuttle direction is changed abruptly, some picture distortion will result.

Remote TV Operation

- Whenever you replace batteries in the remote control, it is necessary to re-set the TV code if your television is not a JVC TV.
- With some televisions, the TV/VIDEO button functions only to switch the TV to the VIDEO(AV) mode.
- Although the provided remote control unit is compatible with JVC televisions as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV.
- Some TV sets may malfunction in response to B code signals. If this happens, switch back to the A mode.

Editing

- Connections made to the front panel VIDEO and AUDIO inputs automatically override any rear panel VIDEO/AUDIO input connections. If you wish to edit with another machine connected to the rear input connectors, make sure that there is nothing connected to the front connectors.
- If connections are made to both the front VIDEO and S-VHS connectors, the S-VHS connection has priority.

Insert Editing

- Insert editing is not possible with cassettes whose safety tab has been removed.
- Insert editing cannot be started from a non-recorded segment.
- In insert editing, the recording speed (SP/EP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.
- To stop insert editing automatically, first determine the edit-out point on the recording tape (the end of the segment to be replaced) and press the remote control's CANCEL button. Then follow steps 8 through 11 in "Insert Editing" ([p.32](#)); insert editing will stop automatically at the counter reading of 0:00:00.
- A small portion of the recording which precedes an insert edit may become erased.

Audio Dubbing

- When monitoring the sound during Audio Dubbing, the normal soundtrack will be automatically selected. If you wish to hear the mixed sound (Hi-Fi + normal soundtracks), [p.24](#).
- Audio dubbing will stop automatically at the counter reading of "0:00:00", and the recorder will enter the Play mode. Check the counter before starting audio dubbing.
- If you wish to use audio sources other than microphone input, connect the audio equipment to the front panel Audio L and R connectors. (For monaural equipment, use the L connector.) If both the microphone and another audio source are connected, mixed recording is possible.
- If howling occurs, move the microphone away from the TV or reduce the TV sound volume. If necessary, monitor the sound with headphones.

Random Assemble Editing

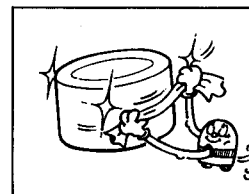
- When editing, there may be a discrepancy of about 2 seconds on the playback tape between the locations you chose as cut-in/out points and the locations the VCR recognizes as those points.
- For any scene, the cut-out point must have a counter reading that is at least 1 second after the cut-in point. A cut-out point with a counter reading less than or the same as the cut-in point will not be registered.

ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

About head cleaning

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.



A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

? If You Have Any Questions (cont'd)

Warranty

Helpful terms and information

The following glossary is for your convenience in helping you better understand your VCR and its operation.

AFC (Automatic Frequency Control): Internal circuit that automatically maintains tuning.

NORM:

Normally, keep AFC at this setting.

SPCL:

If a station you want was "skipped" or reception is unsatisfactory with NORM, try this setting.

Auto Channel Set: Part of the "TUNER SET" function. When used, the VCR runs through (scans) all the channels on the VCR, automatically placing all channels receivable in your area into the VCR's memory.

AUX: Short for Auxiliary. The mode that allows your VCR to accept signals from an external video and/or audio component connected via the VIDEO IN and AUDIO IN connectors located on the front and rear panels.

AV: Short for Audio/Video. Often refers to separate audio (sound) and video (picture) signals which, when combined, make up a program.

AV Connection: Type of VCR-to-TV connection in which the VCR's AUDIO OUT and VIDEO OUT terminals are connected to the TV's AV IN terminals. Audio and video signals are sent separately and directly to the TV without having to modulate them into RF signals.

Bands: Two settings are available on the VCR so you can receive TV programming from either broadcaster.

TV:

Use this setting to receive VHF (Very High Frequency) and UHF (Ultra High Frequency) channels only. These are received by the tuner on channels 2 thru 13, and 14 thru 69, respectively.

CATV:

Short for Community Antenna TV, and commonly referred to as simply "Cable TV". Use this setting to receive channels on cable.

Cassette Adapter: Provided with most Compact VHS camcorders, and also available optionally, it allows VHS-C cassettes to be played (and recorded) on VHS VCRs just like full-size VHS cassettes.

Editing: Refers to dubbing or tape-to-tape editing (in which the contents of a tape in one video unit are copied to another tape in a second video unit), and to creative editing (in which video programming is actually modified to create something different from the original).

FDP: Short for Fluorescent Display Panel, which is the type of display panel used on this VCR.

Head: An electronic component which "writes" or "reads" video and audio signals on the tape.

Head Drum: A drum-shaped cylindrical assembly on which the video heads are located. It rotates at high speed, allowing the heads to "write" and "read" diagonal signal tracks on the video tape.

HQ (High Quality): An enhancement feature in the VCR circuitry which provides greater picture detail.

Mode: The status of the VCR (the operating feature being used) at any given time. (e.g. The tape is being rewound = the VCR is in the Rewind mode.)

Noise: Video noise; various types of picture distortion including pulsing, streaking, and "snow". Some types are unavoidable, such as during high-speed search, while others are the result of weak TV signals or clogged video heads.

On-Screen Menu System: VCR functions are easier to operate because they can be chosen, and required data can be input, while viewing special screens displayed on your TV.

Realtime Counter: The VCR's tape counter shows tape time precisely in hours, minutes and seconds (unlike simple sequential counters). The counter resets automatically when a cassette is inserted.

RF Coaxial Cable: Insulated round cable used to connect the VCR to the TV.

RF Connection: Type of VCR-to-TV connection in which the VCR's RF (Radio Frequency) OUT terminal is connected to the TV's ANTENNA terminal. The VCR essentially "broadcasts" the program to your TV on channel 3 or 4.

Special Effects: Playback modes other than normal-speed forward playback; includes still playback (stop motion), slow motion, and high-speed visual search.

Super VHS: A version of the VHS format which was developed to provide pictures with over 400 lines of horizontal resolution. This VCR can handle standard VHS signals only, and cannot record or play back Super VHS signals.

Tape Speeds: This determines how fast the tape travels during a recording.

SP (Standard Play):

Fast tape speed. Provides recording time of about 2 hrs. per T-120 cassette, and 2 hrs. 40 mins. per T-160 cassette. Most prerecorded software is recorded in SP.

EP (Extended Play):

Slow tape speed. Provides recording time of about 6 hrs. per T-120 cassette, and 8 hrs. per T-160 cassette. Useful for multiple-program recording on a single cassette.

Some manufacturers sell VCRs with an intermediate LP (Long Play) speed, which is not officially recognized as a VHS standard. This JVC VCR can play back LP-recorded tapes, but will not record in that tape speed.

Timer-Recording: Using the VCR's built-in clock/timer for automatic, unassisted start and stop of recording.

Tracking: The video head's ability to accurately "read" recorded signals (tracks) without deviating. When tracking deviation occurs, it appears on the screen as vertical jitter and grainy streaks. The Automatic Tracking function on this VCR is an extremely accurate system which greatly reduces the possibility of deviations.

Tuner: The part of the VCR that receives TV signals off the air and via cable. The Frequency Synthesized Tuner of this VCR is highly accurate, and is capable of receiving up to 181 channels.

VCR: Short for Video Cassette Recorder.

VCR Plus+™: A simplified system that allows timer-recording of a TV program simply by keying in the code number for it.

VHS: The video format of this VCR, and the video format most widely used throughout the world.

JVC

LIMITED WARRANTY

CONSUMER VIDEO 1-90

JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below ONLY TO THE ORIGINAL PURCHASER AT RETAIL, to be FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP from the date of original retail purchase for the period as shown below. ("The Warranty Period")

PARTS	LABOR
1 YR	90 DAYS

THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY (50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

WHAT WE WILL DO:

If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

WHAT YOU MUST DO FOR WARRANTY SERVICE:

Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800) 537-5722.

If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus a letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number.

If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

WHAT IS NOT COVERED:

This limited warranty provided by JVC does not cover:

- Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
- Initial installation and installation and removal for repair;
- Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
- Damage that occurs in shipment, due to act of God, and cosmetic damage;
- Signal reception problems and failures due to line power surge;
- Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus (Needle) are covered for 90 days from the date of purchase;
- Accessories;
- Batteries (except that Rechargeable Batteries are covered for 90 days from the date of purchase); from the date of purchase);

There are no other express warranties except as listed above.

THE DURATION OF ANY IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential damages or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

JVC COMPANY OF AMERICA
DIVISION OF US JVC CORP.
41 Slater Drive
Elmwood Park, New Jersey 07407

REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY, THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:

Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No.:	Serial No.:
Purchase date:	Name of dealer:

Guide Channel List For VCR Plus+™

VCR Plus+™ Broadcast Channel Assignments

City	Broadcast Station (call letters)	VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your VCR receives the station on (VCR CH)
ALABAMA			
Birmingham	WCFT Tuscaloosa	30	33
	WMBG (CBS)	14	42
	WMLL Gadsden	23	44
	WAFB Huntsville	58	48
	WZLX Huntsville	28	54
ARIZONA			
Phoenix	KTVW (Univision)	32	33
	KUTP (Ind.)	31	45
CALIFORNIA			
Los Angeles	KENT Santa Barbara	7	3
	KMAX (Univision)	14	34
	KMRH Palm Springs	4	38
	KESQ Palm Springs	7.25	42
	KHSC Ontario	26	46
	KVEA Corona	23	52
	NLCS (PBS)	17	58
	KRCA (Ind.)	20	62
	KADY Oxnard	15	63
Sacramento	KTVN Reno, NV	32	2
	KRVN Reno, NV	28	4
	KRCH Redding	8	7
	KHNE Redding	11	9
	KFCB Concord	27	42
	KBKX San Francisco	15	44
	47 Sacramento	29	47
	KSCH Stockton	25	58
	KFTL Stockton	56	64
San Diego	KSTV (FOX)	11	6
	KFMB (CBS)	2	8
	KGTV (ABC)	7	10
	KNSD (NBC)	4.19	39
	KUSI (Ind.)	21	51
	KVEA Corona	23	52
	KCBS Salinas	24	54
San Francisco	KWSB (Ind.)	12	38
	KFCB Concord	15	42
	KBKX (Ind.)	16	44
	KMST Monterey	17	46
	KSTS San Jose	18	48
	KTEH San Jose	19	54
	KSCH Stockton	23	58
	KCSM San Mateo	21	60
Stockton	KTVN Reno, NV	32	2
	KRVN Reno, NV	28	4
	KRCH Redding	8	7
	KHNE Redding	11	9
	KFCB Concord	27	42
	KBKX San Francisco	15	44
	47 Sacramento	29	47
	KSCH (Ind.)	25	58
	KFTL (Ind.)	56	64
COLORADO			
Denver	KWB (Educational)	5	41
	KCC (Spanish)	8	49
	KWHD Castle Rock	27	53
	KTNB (Religious)	10	57
	KLBD (Telemundo)	3	59
CONNECTICUT			
Hartford	WGBS Boston, MA	14	38
	WEDW Bridgeport	28	49
	WEDN Norwich	23	53
	WGBY Springfield, MA	16	57
DISTRICT OF COLUMBIA			
Washington, DC	WMPB/8 Annapolis, MD	22	22/87
	WHSW/WJL Baltimore, MD	65	24
	WTFP Harrisburg, PA	18	33
	W42AJ (Telemundo)	60	42
	WPMI York, PA	86	43
	WBFF Baltimore, MD	10	45
	WMDT Salisbury, MD	30	47
	W4BAW (Univision)	77	48
	WGBS Red Lion, PA	19	49
	WNYT Goldville, VA	76	53
	WNLV Baltimore, MD	12	54
	WFTF Fredericks, MD	40	62
	WFTF Fredericks, MD	79	62

City	Broadcast Station (call letters)	VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your VCR receives the station on (VCR CH)
FLORIDA			
Melbourne	WPBT Miami	19	2
	WTVX Ft. Pierce	18	34
	WOFL Orlando	4	35
	WXEL W. Palm Beach	20	42
	WFSO (Ind.)	12	43
	WTOG Tampa	14	44
	WQGX Ocala	11	51
	WTOG Cocoa	16	52
	WACX Leesburg	7	55
	WFSO (Ind.)	3	53
Miami	WTVX Ft. Pierce	14	34
	WQZL (Ind.)	11	39
	WXEL W. Palm Beach	15	42
	WFTT (TBN)	8	45
	WSCV Ft. Lauderdale	13	51
Orlando	WPBT Miami	19	2
	WTVX Ft. Pierce	14	34
	WQFL (FOX)	4	35
	WXEL Palm Beach	20	42
	WBSF Melbourne	12	43
	WTOG Tampa	14	44
	WQGX Ocala	11	51
	WTOG Cocoa	16	52
	WACX Leesburg	7	55
Tampa	WTVX Ft. Pierce	18	34
	WOFL Orlando	4	35
	WTOG (Ind.)	14	46
	WMPH Naples	74	46
	W4BAI (Ind.)	29	49
	WQGX Ocala	23	51
	WACX Leesburg	15	55
	WBSV Venice	56	62
West Palm Beach	WBSF Miami	3	33
	WTVX Ft. Pierce	14	34
	WQZL Miami	11	39
	WXEL (PBS)	15	42
	WFTT Miami	8	45
	WSCV Ft. Lauderdale	13	51
GEORGIA			
Atlanta	WNGM Athens	10	34
	WAGT Macon	18	41
	WGNX (Ind.)	4	45
ILLINOIS			
Chicago	WCFC (Ind.)	3	38
	WSNS (Telemundo)	4	44
INDIANA			
Indianapolis	WBAK Terre Haute	36	38
	WCLU Bloomington	19	42
	WIPB Muncie	27	49
	WGIN (FOX)	50	59
KANSAS			
Kansas City	KSHB (FOX)	40	41
	KTKA Topeka	28	49
	KZKC/KSMO (Ind.)	29	62
KENTUCKY			
Louisville	WGRB Campbellsville	26	34
	WDRB (FOX)	66	41
	WYMT Hazard	20	57
LOUISIANA			
New Orleans	WNOL (FOX)	21	38
MASSACHUSETTS			
Boston	WGBX (Ind.)	14	38
	WGBX (PBS)	32	44
	WCVB Weymouth, MA	13	59
	WDOI Merrimack, NH	70	60
	WNAO Providence, RI	28	64
MARYLAND			
Baltimore	WMPB/8 Annapolis	22	22/87
	WHSW/WJL (H&N)	65	24
	WTFP Harrisburg, PA	18	33
	W42AJ (Telemundo)	60	42
	WPMI York, PA	86	43
	WBFF (FOX)	10	45
	WMDT Salisbury	30	47
	W4BAW (Univision)	77	48
	WQZL (Ind.)	11	39
	WNYT Goldville, VA	76	53

City	Broadcast Station (call letters)	VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your VCR receives the station on (VCR CH)
	WNUV (Ind.)	12	54
	WFFT Frederick	40	62
	WTKX Manassas, VA	75	66
MICHIGAN			
Detroit	WQXI Cadillac	18	33
	WGVU Grand Rapids	21	35
	WADL Mount Clemens	3	38
	WUHO Battle Creek	22	41
	SARNA (CTV)	5	42
	CRKO Sarnia	26	42
	WSYM Lansing	27	47
	WADP Saginaw	32	49
	WLJL Lansing	18	53
	WWSOR (CBEFT)	8	54
	WGPR (Ind.)	15	62
	WGVU (PBS)	2	35
	WUHQ (ABC)	4	41
Grand Rapids	WHME South Bend, IN	19	46
	WSYM Lansing	15	47
	WGVU (PBS)	69	52
	WTLJ Muskegon	18	54
	WFFT Ft. Wayne, IN	21	55
	WLLA (Ind.)	24	64
MINNESOTA			
St. Paul	KTMJ (Ind.)	23	23/41
NEW YORK			
Buffalo	WNYB (TBN)	67	49
	WGBX Boston, MA	15	38
New York	WXTV Paterson, NJ	12	41
	WNLJ (Ind.)	6	47
	WEDW Bridgeport, CT	14	49
	WLD (Univision)	10	55
	WFXV (FOX)	33	28
UTAH			
NORTH CAROLINA			
Asheville	WUAF (PBS)	27	33
Charlotte	WTVI (PBS)	67	42
	WNNW Winston Salem	70	45
	WUZY Belmont	68	46
	WGGT Greensboro	69	48
	WTVI Charlotte	67	42
	WNNW (FOX)	70	45
	WJZY Belmont	66	46
	WGGT (Ind.)	69	48
	WFCI Fayetteville	31	62
OHIO			
Cincinnati	WPGT Dayton	61	45
	WCET (PBS)	67	48
	WCYN Covington, KY	69	54
	WSTR (Ind.)	68	54
Cleveland	WUAB (Ind.)	55	43
	WEAD Akron	26	49
	WBXN Akron	31	55
Columbus	WOSU (PBS)	28	34
	WSFJ Newark	71	51
	WWAT Chillicothe	66	53
OKLAHOMA			
Oklahoma City	KOCB (Ind.)	15	34
	KAUT (FOX)	19	49
OREGON			
Portland	KPOX Vancouver, WA	14	49
PENNSYLVANIA			
Harrisburg/Lancaster	WPHN New York, NY	70	11
	WTFP (PBS)	31	33
	WPMI York	23	43
	WBFF Baltimore, MD	50	45
	WGBS Red Lion	70	82
	WGBX	83	53
	WGBS Boston, MA	35	27
Philadelphia	WNLJ Camden, NJ	23	23/52
	WYBE (PBS)	18	35
	WLVT Allentown	30	39
	WNLJ Trenton, NJ	56	52
	WGBS Boston, MA	32	57
Pittsburgh	WYTV Youngstown, OH	18	33
	WPGH (FOX)	26	57
	WFX New York, NY	70	11
	WTFP Harrisburg	31	33
	WPMI York	23	43
	WBFF Baltimore, MD	50	45

City	Broadcast Station (call letters)	VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your VCR receives the station on (VCR CH)
	WGBS Red Lion	82	49
	WBSU	83	53
	WGBS Boston, MA	26	57
RHODE ISLAND			
Providence	WGBX Boston, MA	14	38
	WGBX Boston, MA	32	44
	WEDN Norwich, CT	23	53
	WCVX (Ind.)	13	58
	WNAO Vey and Haven, MA	28	64
SOUTH CAROLINA			
Greenville	WNEH Greenwood	24	38
Spartanburg	WJZY Belmont, NC	66	46
	WRET (PBS)	31	49
TEXAS			
Dallas/Ft. Worth	KDAF (FOX)	3	33
	KXTX (Ind.)	6	39
	KFTW (Telemundo)	7	52
	KDXT (Ind.)	9	58
Houston	KH-TV (Ind.)	5	39
	KJLM Rosenberg	4	45
	KTMD Galveston	6	48
	KTFH Corpus	7	49
	KHRT Kerville	7	35
	KWEX (Univision)	8	41
	KVDA (Telemundo)	17	60
VIRGINIA			
Norfolk/Portsmouth	WUNDC Chapel Hill, NC	2	24
Newport News/Hampton	WTVZ (FOX)	32	33
	WRLA Richmond	11	35
	WHTT Charlottesville	16	41
	WUCB (Ind.)	17	49
	WTTG Washington, DC	50	5
	WVPT Staunton	61	51
	WCVW Richmond	14	57
WISCONSIN			
Milwaukee	WISN Madison	29	39
	WUAB Madison	40	47
	WJUT (Ind.)	61	58
WEST VIRGINIA			
Charleston	WVBY Huntington	14	33
	WDBO Portsmouth, OH	32	42
	WYMT Hazard, KY	30	57

VCR Plus+™ Cable Channel Assignments

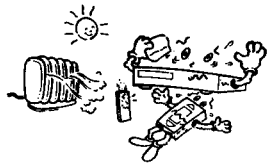
Station	VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your Cable Box receives the station on (VCR CH)
PT Prime Ticket Network	27	
CSP C-SPAN	29	
HBO Home Box Office	33	
ESPN ESPN	34	
AMC American Movie Classics	35	
DSO The Discovery Channel	37	
NBC Nickelodeon	38	
A&E Arts & Entertainment Network	39	
SHQ Showtime	41	
CNN Cable News Network	42	
TBS TBS SuperStation	43	
USA USA Network	44	
MAX Channel	45	
LIP Lifetime	46	
FAM The Family Channel	47	
MTV Music Television	48	
TNN The Nashville Network	49	
The Learning Channel	51	
TNT Turner Network Television	52	
DS The Disney Channel	53	
SNV Bravo	54	
WGN WGN (Chicago, Ind.)	55	
BET Black Entertainment Television	57	
TAC The Movie Channel	58	
SC SportsChannel	59	
WOR WOR (New York, Ind.)	60	
Video Hits 1	62	
Hotels	64	

NOTE:

Please check in your TV book or newspaper and fill in the blank spaces as they apply to your area and TV system.

Precautions

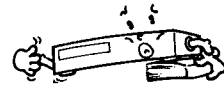
Please follow these safety precautions. Not doing so may result in damage to the VCR, remote control, or video cassette.



Avoid extreme heat and direct sunlight



Avoid strong magnetic fields



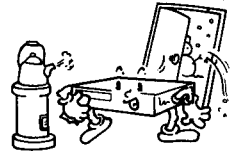
Use the VCR in a stable, horizontal position only



Avoid extreme cold



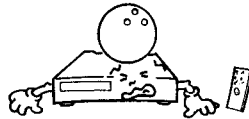
Do not block the VCR's ventilation openings



Beware of moisture condensation
Moisture in the air will condense on the VCR when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the VCR's power turned on for a few hours to let the moisture dry.



Avoid extreme humidity



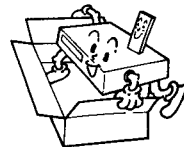
Do not place anything heavy on the VCR or remote control



Avoid dust



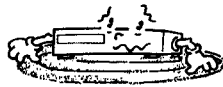
Do not place anything which might spill on top of the VCR or remote control



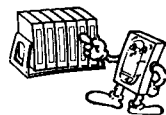
When transporting
■ Be sure to remove cassette from VCR before packing
■ Avoid violent shocks to the VCR during packing and transport



Avoid places subject to vibrations



Do not place the VCR on cushions, pillows, or thick carpeting



Place cassettes in cassette cases and store vertically

For Servicing

HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE: 1-800-537-5722

Dear customer:

In order to receive the most satisfaction from your purchase, read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location, please refer to the factory service center list below or within the Continental United States, call 1-800-537-5722 for your authorized servicer. Remember to retain your Bill of Sale for Warranty Service.

— JVC

JVC SERVICE & ENGINEERING COMPANY OF AMERICA DIVISION OF US JVC CORP.

FACTORY SERVICE CENTER LOCATIONS

107 Little Falls Road
Fairfield, NJ 07004-2105
(201) 808-9279

5665 Corporate Avenue
Cypress, CA 90630-0024
(714) 229-8011

230 Eliot Street
Ashland, MA 01721-2377
(508) 881-5923

1500 Lakes Parkway
Lawrenceville, GA 30243-5357
(404) 339-2522

10700 Hammerly, Suite 110
Houston, TX 77043
(713) 935-9331

14505 Commerce Way
Miami Lakes, FL 33016-1512
(305) 362-6252

705 Enterprise Street
Aurora, IL 60504-8149
(708) 851-7855

2969 Mapunapuna Place
Honolulu, HI 96819-2040
(808) 833-5828

890 Dubuque Avenue
South San Francisco, CA 94080-1804
(415) 871-2666

Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.

NATIONAL HEADQUARTERS
JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.
107 Little Falls Road
Fairfield, NJ 07004-2105

If you ship the product...

Pack your JVC unit in the original carton or one of equivalent size and strength. Enclose, with the unit, a letter stating the problem or symptom that exists and also a copy of the receipt or bill of sale you received when you purchased your JVC unit. Print your home return address on the outside and the inside of the carton. Send to the appropriate JVC Factory Service Center as listed above.

Don't service it yourself.

CAUTION

To prevent electrical shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

ACCESSORIES

To purchase accessories for your JVC product, you may contact your local JVC Dealer. Or from the 48 Continental United States call toll free: 1-800-882-2345.

SECTION 1 DISASSEMBLY

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out four screws (A).
2. Slide the side panels (L) and (R) in directions (1) and (2), and remove them. (Only use for HR-S6900U)
3. Take out one screw (B).
4. Tilt up the rear end of the top cover in direction (3), then remove the top cover.

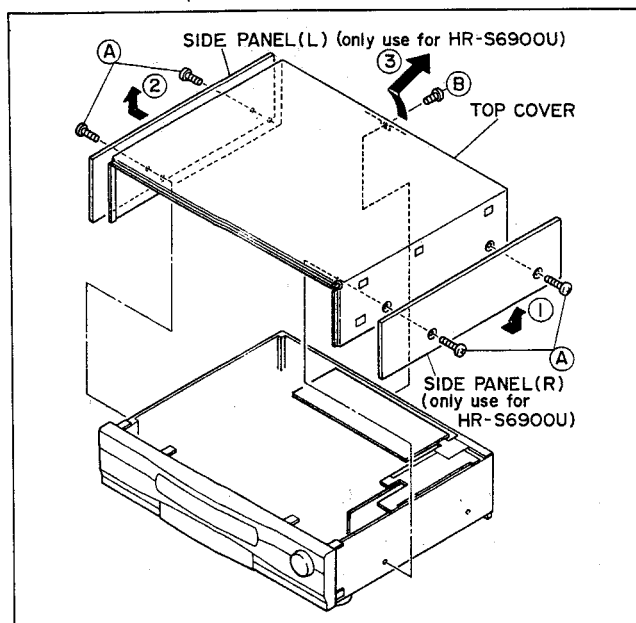


Fig. 1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage four tabs (a) of the panel assembly from the upper side of the chassis in direction (1).
3. Disengage two tabs (b) of the both side of front panel assembly and disengage three tabs (c) from bottom of the chassis.
4. Disconnect one connector (d) and pull the front panel assembly to forward direction.

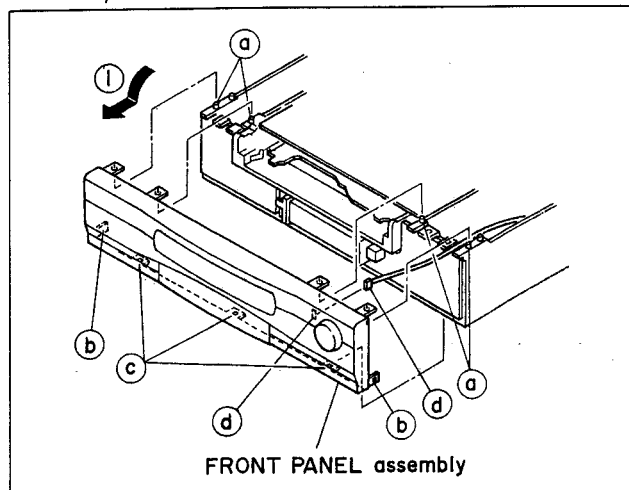


Fig. 1-2A Front panel assembly

Note: Install the front panel assembly as shown in Fig. 1-2B and reengage the tabs.

Supply power and use a spare cassette to check for normal loading and eject operations.

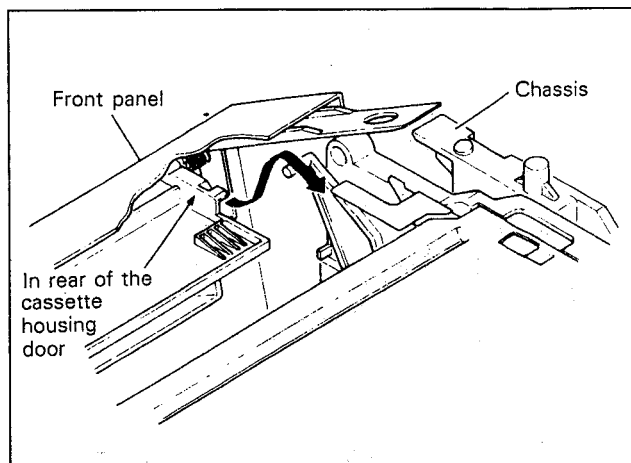


Fig. 1-2B Cassette housing door

1.1.3 Bottom cover

1. Remove the top cover.
2. Take out two screws (C).
3. Disengage three tabs (a), slide the bottom cover in direction (1) and remove the bottom cover and two earth plates.

Note: Install the bottom cover, set two earth plates and reengage three tabs (a), then tighten two screws (C).

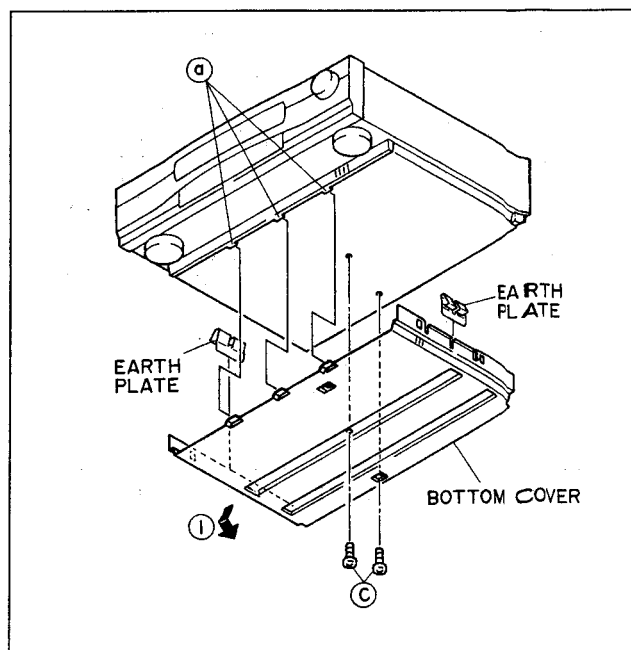


Fig. 1-3 Bottom cover

1.1.4 TUNER/MIC board assembly

1. Remove the top cover.
2. Take out two screws (D).
3. Take out five screws (E) and tilt up the TUNER/MIC board assembly in direction (1) and remove it.

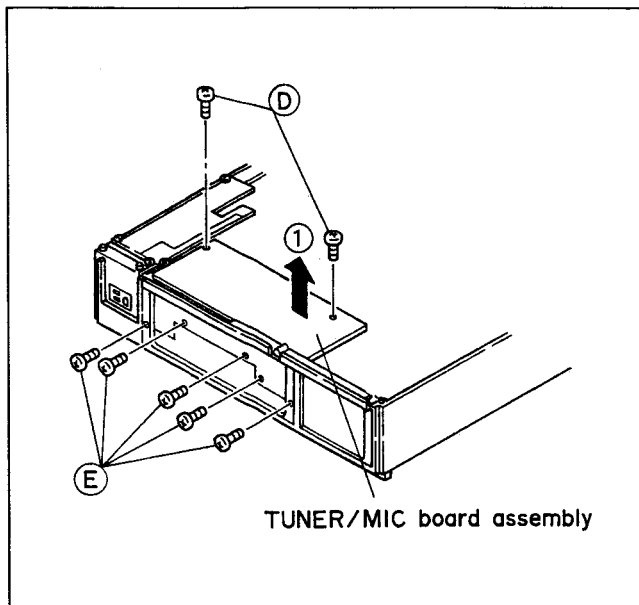


Fig. 1-4A TUNER/MIC board assembly-1

4. For check and repairs, set up the TUNER/MIC board assembly to rear of chassis at (a) positions as shown in Fig. 1-4B.

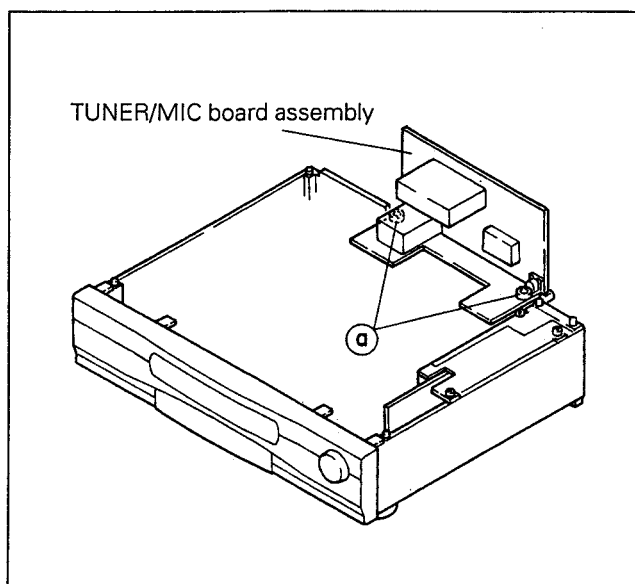


Fig. 1-4B TUNER/MIC board assembly-2

1.1.5 SWITCHING REGULATOR board assembly

1. Remove the top cover.
2. Take out four screws (F), tilt up the SWITCHING REGULATOR board assembly in direction (1) and remove it.

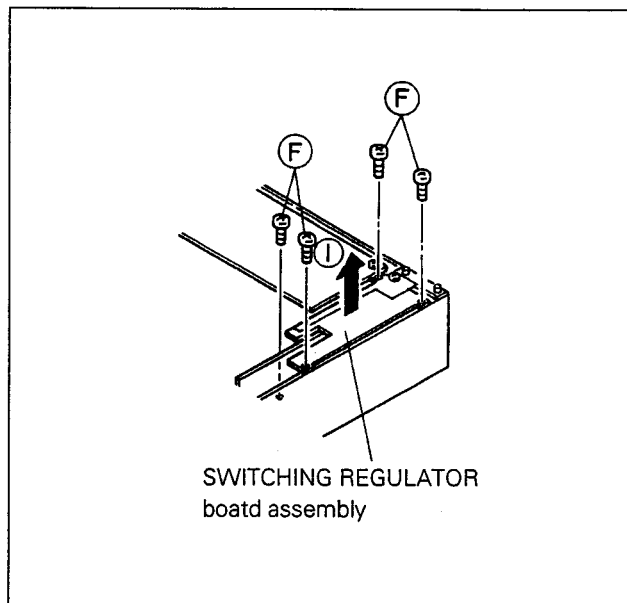


Fig. 1-5 SWITCHING REGULATOR board assembly

1.1.6 REC board assembly and PRE board assembly

1. Remove the top cover.
2. Disconnect four connectors (a) and take out two screws (G).
3. Tilt up the REC board assembly in direction (1) and disconnect two connectors (b).
4. Remove PRE board assembly and REC board assembly.

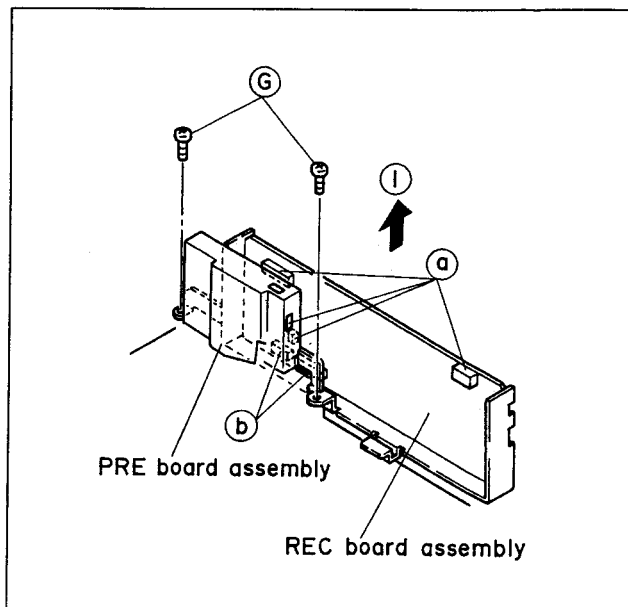


Fig. 1-6 REC board assembly and PRE board assembly

1.1.7 DISPLAY board assembly and SWITCH/JACK board assembly

1. Remove the top cover and front panel assembly.
2. Disconnect one connector (a).
3. Disengage four tabs (b) and remove DISPLAY board assembly.
4. Disengage two tabs (c) and remove SWITCH/JACK board assembly.

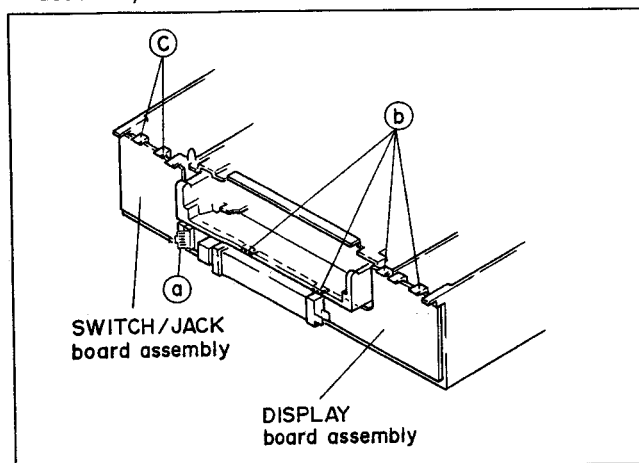


Fig. 1-7 DISPLAY board assembly and SWITCH/JACK board assembly

1.1.8 Main deck assembly

1. Remove top cover, front panel assembly, DISPLAY board assembly and SWITCH/JACK board assembly.
2. Disconnect four connectors (a).
3. Take out one screw (H), two screws (J) and two screws (K).
4. Tilt up the main deck assembly in direction ① and remove it.

Notes:

- For check the bottom side of main deck assembly, take out screws (H), (J) and (K), and set up the front side of chassis as shown in Fig. 1-8B.
- Install the main deck assembly, use care not to damage flat wires and put the wiring correctly. If these are incorrect, the mode motor will not rotate properly.

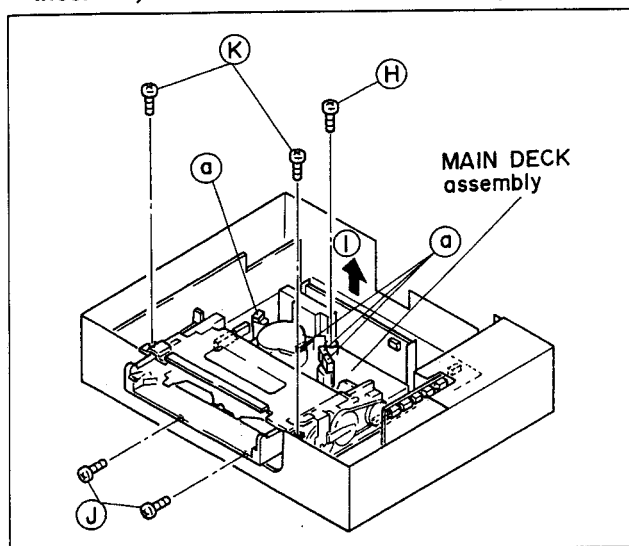


Fig. 1-8A Main deck assembly-1

5. For checks and repairs, set up the main deck assembly to front of chassis as shown in Fig 1-8B

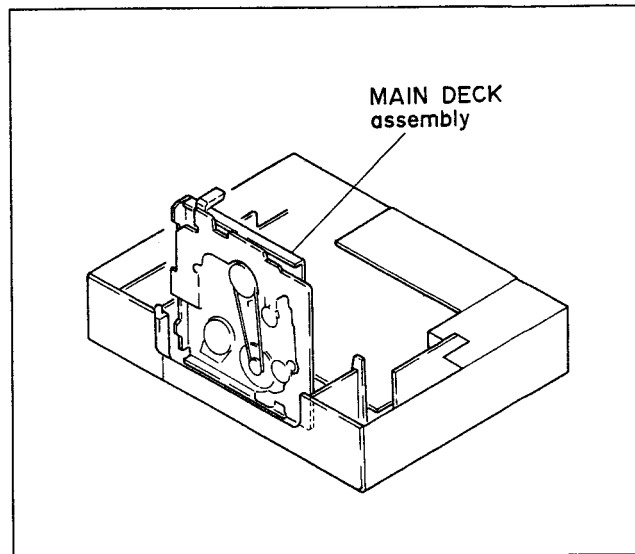


Fig. 1-8B Main deck assembly-2

1.1.9 DECK TERMINAL board assembly

1. Remove the top cover and main deck assembly.
2. Take out four screws (L).
3. Remove the capstan belt and washer.
4. Disconnect one connector (a), disengage two tabs (b), and remove the DECK TERMINAL board assembly.

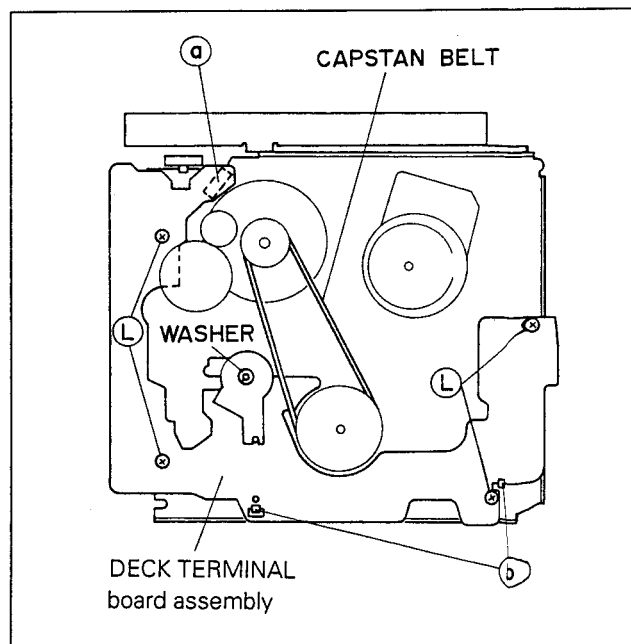


Fig. 1-9 DECK TERMINAL board assembly

1.1.10 Cassette housing assembly

Note: When install or remove the cassette housing assembly, be sure set the Eject position of mechanism condition.

1. Remove the top cover and front panel assembly.
2. Take out two screws (M) and two screws (N), tilt up the cassette housing assembly in direction ①.
3. Disengage two tabs (a) and remove the cassette housing assembly.

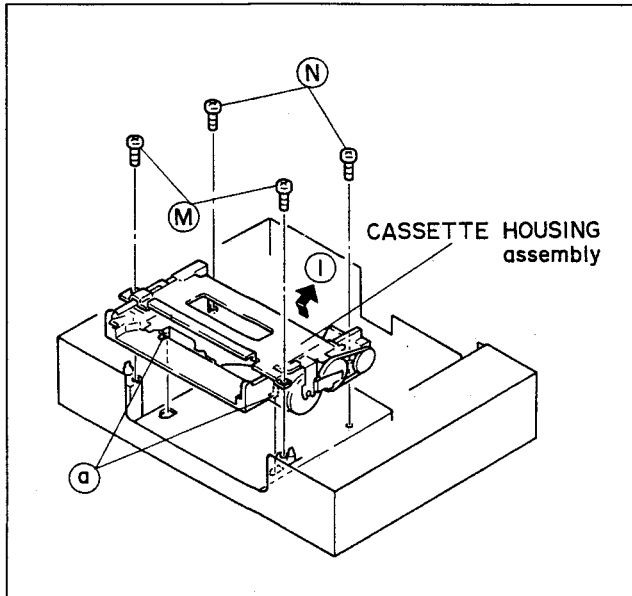


Fig. 1-10 Cassette housing assembly

1.1.11 MAIN board assembly

1. Remove the top cover, front panel assembly, TUNER/MIC board assembly, main deck assembly and cassette housing assembly.
2. Take out four screws (P), tilt up the MAIN board assembly in direction ① and remove it.

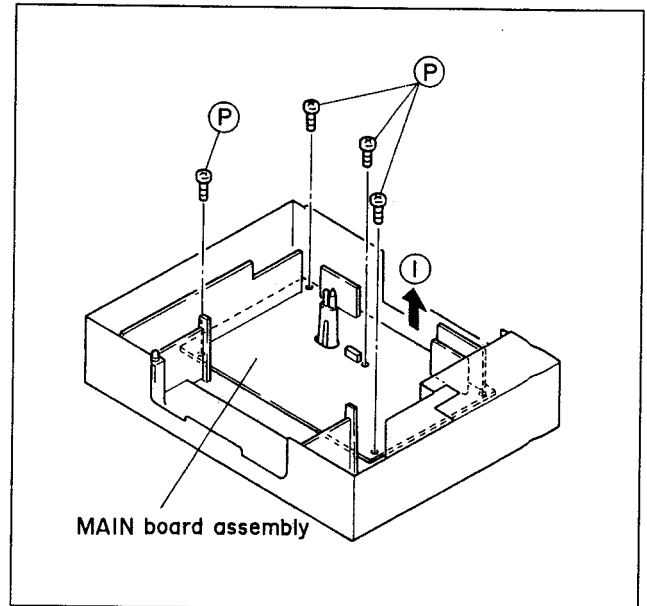


Fig. 1-11 MAIN board assembly

SECTION 2 MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

- 1) Disconnect VCR from AC power before soldering.
- 2) Avoid imparting stress to wires when disengaging connectors.
- 3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
- 4) Use care not to damage tabs, claws, etc. during repairs.
- 5) Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
- 6) When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.
See Sec.1 DISASSEMBLY.

2.1.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

- 1) Disconnect the power cord from the AC outlet, and remove the top cover, the front panel and the cassette housing assembly in this order.
- 2) Disable the photo transistor sensor (END SENSOR, START SENSOR) on the main-deck by applying an opaque cover.
- 3) Set the CASSETTE switch (push switch) to ON.
- 4) Release the LED GUIDE from the hook while removing it.
- 5) Connect the power cord to the AC outlet and turn on the POWER switch. Select the desired operation modes with the operation buttons or remote control unit. However, notice that without tape, setting for the RWD or FF direction modes produces the Stop mode after a few seconds later and power supply is cut off due to absence of the reel sensor output.

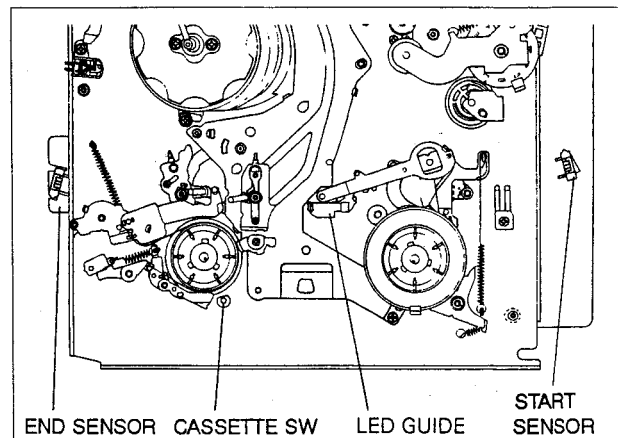


Fig. 2-1-1 Checking without cassette housing

2.1.3 Manual removal of loaded tape

In event of failure which leaves the tape in the loaded position, remove it by the following procedure.

- 1) Disconnect the power cord from the AC outlet, and remove the top cover and the front panel in this order.
- 2) Turn the loading motor on the main deck by hand in the direction of the arrow for unloading the tape. At that time, pay careful attention to the tape not to get soiled with grease.
- 3) Remove the cassette housing assembly.
- 4) Turn the reel of the cassette tape to take in the slack of the tape. During this work, hold down the cassette tightly by hand, otherwise it may damage the tape.
- 5) Take off the cassette from the cassette housing.

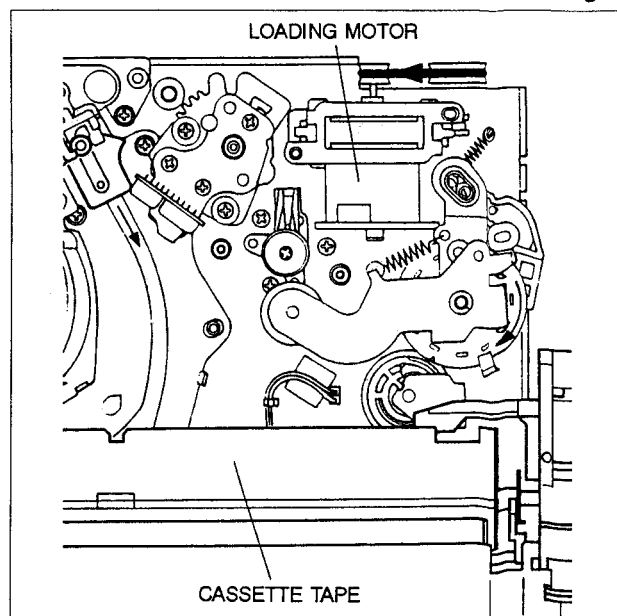


Fig. 2-1-2 Manual removal of loaded tape

2.1.4 Test equipment

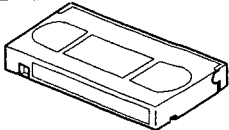
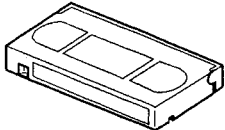
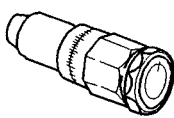
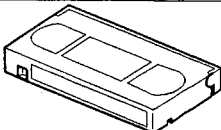
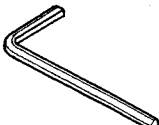
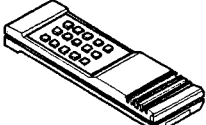
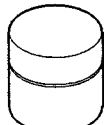
Alignment tape (SP) MH-1	Alignment tape (EP) MH-1L	Torque gauge PUJ48075-2	Back tension cassette gauge PUJ48076-2
			
A/C head positioning tool PTU94010	Line head wrench PGJ04033	Presetting unit PTU94008	Grease PTU94014A
			

Table 2-1-1

2.2 MAIN MECHANISM PARTS

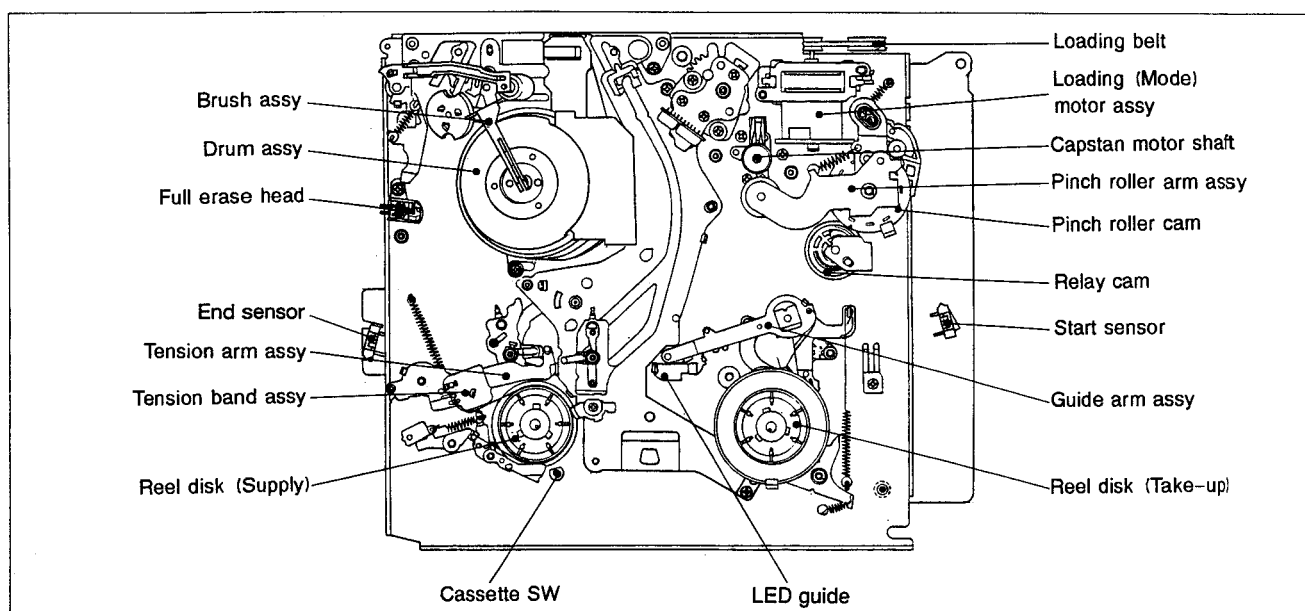


Fig. 2-2-1 Top view of main-deck

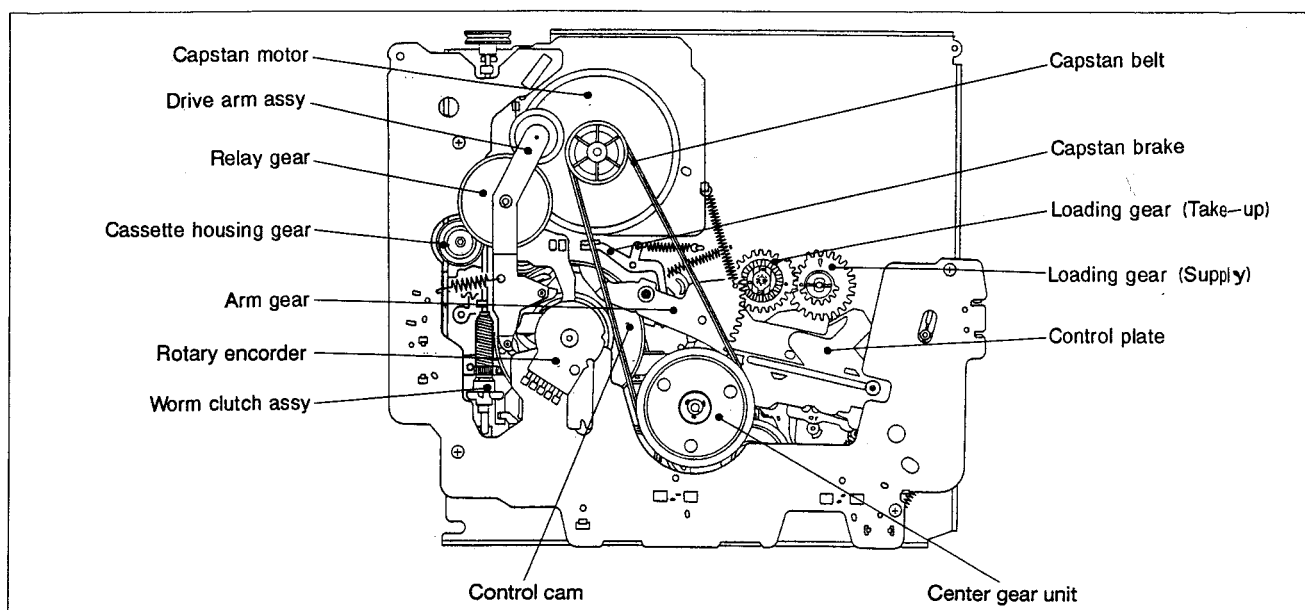


Fig. 2-2-2 Bottom view of main-deck

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly. Before oiling, clean with alcohol.

Apply one or two drops of oil.

Avoid excess oil.

- 1) Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 2-2-1

- 2) Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: Stir grease that has been stored for an extended period.

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced at when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation hours						
		250	500	750	1000	1250	1500	2000
Tape Transport	Upper drum assy	★	★	★	○	★	○	○
	A/C head	★			○			○
	Pinch roller arm assy							
	Full erase head							
	Tension arm assy	★	★	★	★	★	★	★
	Lower drum motor assy							
	Capstan motor (Shaft)							
Drive	Capstan motor							○
	Capstan belt			○				○
	Mode motor assy							○
	Loading belt			○				○
	Reel disk (Supply)							○
	Reel disk (Take-up)							○
	Clutch assy							○
	Worm clutch assy							○
Brake	Sub brake assy			○				○
	Main brake assy			○				○
	Sub brake			○				○
	Tension band assy							○
Others	Brush assy			★				○
	Tension band assy							○

★ : Cleaning

○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 MECHANISM DISASSEMBLY & INSTRUCTION

2.4.1 Disassembly of Mechanism

1. Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and instruction the mechanism, and it is suggested to set the mechanism to this mode before disassembly and instruction. The exclusive mechanism operation mode is not generally used and becomes available by manual setting only.

Note: *Although the mechanism can be disassembled as it is set in the EJECT mode, it is recommended to set it to the exclusive mechanism operation mode.*

2. Setting of exclusive mechanism operation mode

Turn the Pinch Roller Cam clockwise as viewed from the upper side so as to rotate the Loading Motor in the direction of the arrow, while adjusting positions of the Pinch Roller Cam and the Relay Cam so that their markings coincide with each other as shown in Fig. 2-4-2.

At that time, both the pole bases should be moved to the full extent in the direction of the Reel Base Assembly (supply side).

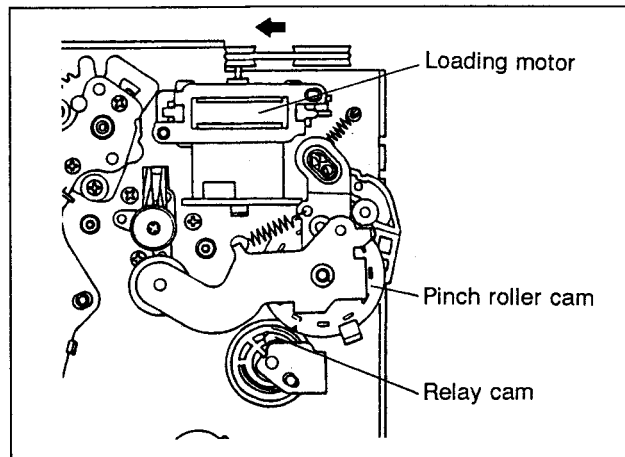


Fig. 2-4-1

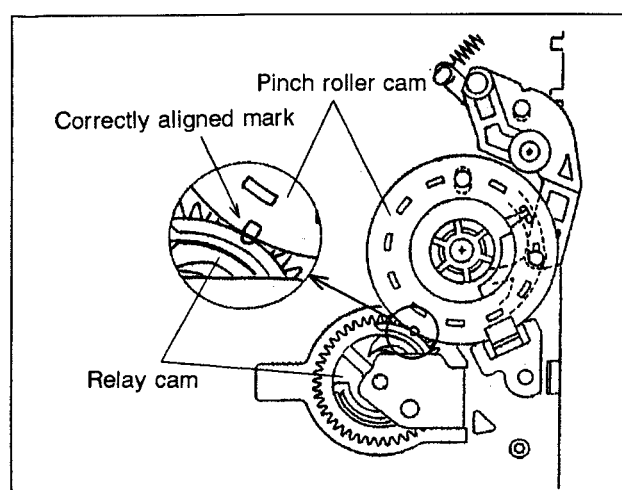


Fig. 2-4-2

3. Disassembling of mechanism assembly in the lower side

- 1) Unsolder the Rotary Encoder from the DECK TERMINAL board (at five points) and remove the slit washer (1'). Release the Rotary Encoder from the hooks in the both sides while removing it for replacing. When the Rotary Encoder need not to replace, remove the slit washer only and take off the Rotary Encoder as it is soldered to the DECK TERMINAL board.
- 2) Remove the tension spring (2'') and the slit washer (2') while taking off the Drive Arm Assembly.
- 3) Remove the Relay Gear.

No.	Part name
1	Rotary encoder
1'	Slit washer
2	Drive arm assembly
2'	Slit washer
2''	Tension spring
3	Relay gear

Table 2-4-1

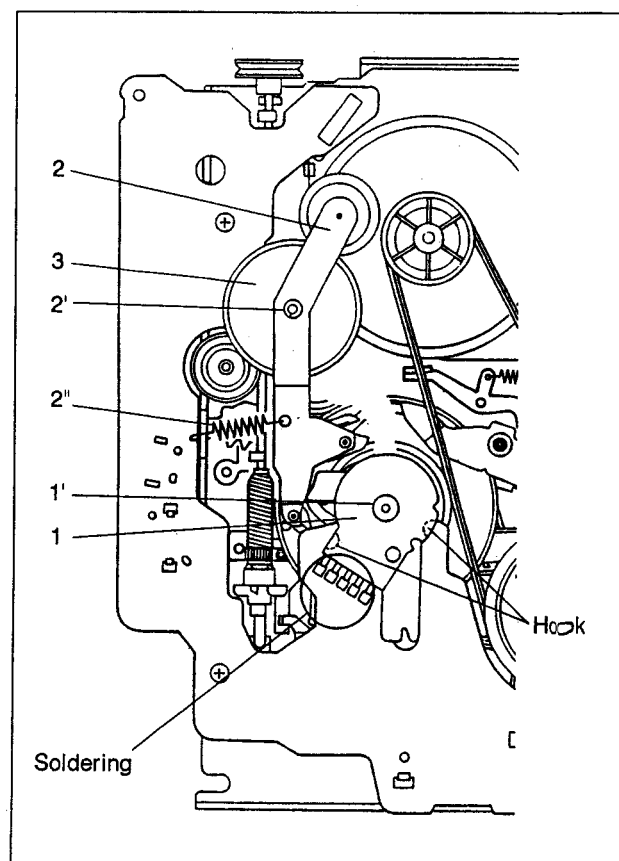


Fig. 2-4-3

- 4) Disengage the CAPSTAN belt.
- 5) Remove the 4 screws (5'), disconnect the connector (CN2), and disengage the 2 hooks. Then remove the DECK TERMINAL board.

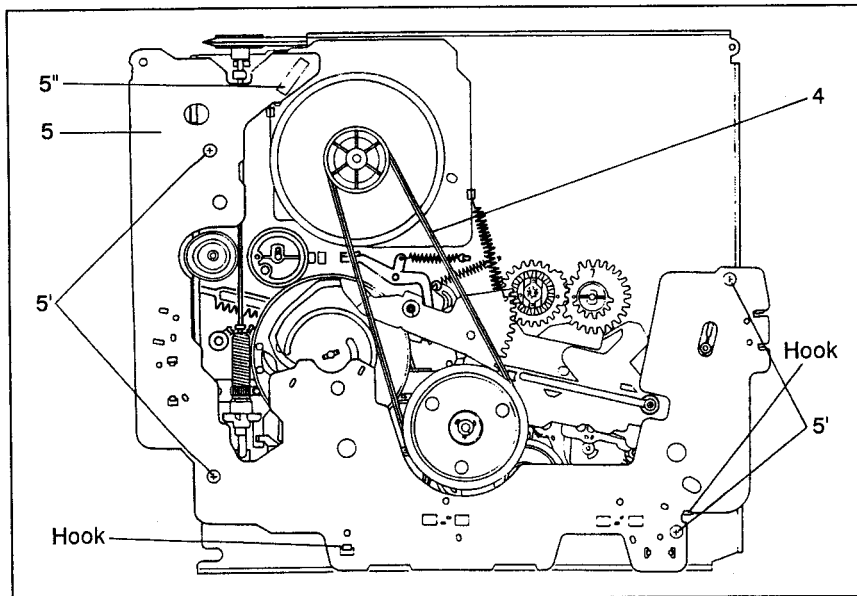


Fig. 2-4-4

No.	Part name
4	Belt
5	Deck terminal board assembly
5'	Screws (x4)
5''	Connector (CN2)

Table 2-4-2

- 6) Remove the slit washer (6') and the tension spring (6'') while taking off the Arm Gear.
- 7) Expand the two center hooks outwards while removing the Control Cam. Carefully do this work not to damage the hooks.
- 8) Remove the slit washer (8') and the Center Gear Unit.
- 9) Disengage the loading belt, and release the Worm Clutch Assembly from the 3 hooks while taking it off. Carefully do this work not to damage the hooks.
- 10) Remove the slit washer (10') and the Control Plate.

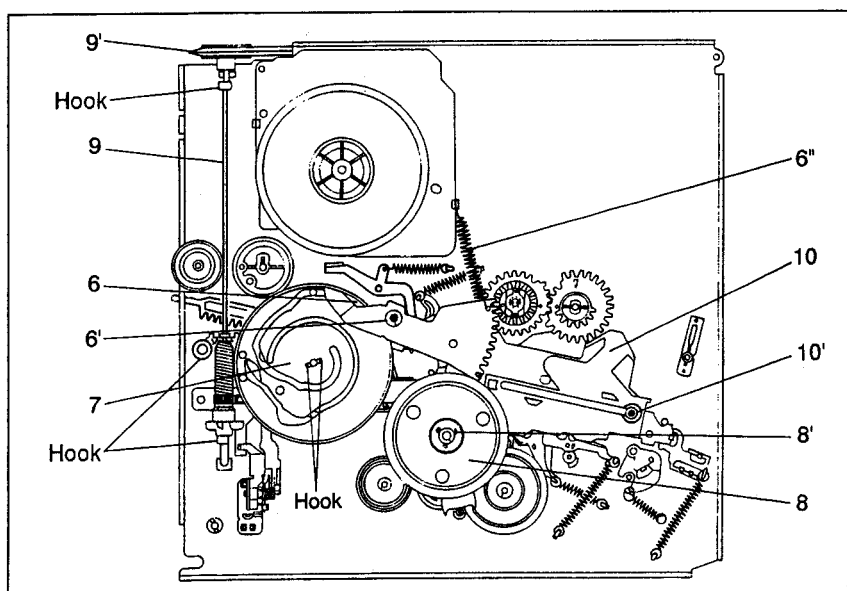


Fig. 2-4-5

No.	Part name
6	Arm gear
6'	Slit washer
6''	Tension spring
7	Control cam
8	Center gear unit
8'	Slit washer
9	Worm clutch assembly
9'	Belt
10	Control plate
10'	Slit washer

Table 2-4-3

- 11) Disengage the tension spring (11') and remove the Capstan Brake.
- 12) Disengage the tension spring (12') by a side, and release the Slide Plate from the two hooks while taking it off.
- 13) Remove the slit washer (13') and the Cassette Housing Gear.
- 14) Spread out the center hook of the Relay Cam with care not to damage the hook, and remove the Relay Cam.
- 15) Pull out the S-switch (S-VHS) pin, which requires careful attention not to lose it because it becomes free when the DECK TERMINAL board is removed.
- 16) Set the Slide Base Assembly free, then move it upwards while removing it.
- 17) Remove the Reset Lever.
- 18) Remove the Idler Unit.
- 19) Disengage the tension spring (19') by a side, and remove the Idler Cancel Lever.
- 20) Remove the slit washer (20') of the Clutch Gear Unit (TU side) and take it off.
- 21) Remove the slit washer (21') of the Clutch Gear Unit (SUP side) and take it off.
- 22) Expand the two outer hooks in the center of the Loading Gear (TU side) and take off the Loading Gear. Carefully do this work not to damage the hooks.
- 23) Remove 1 screw (23') and the arm of the Loading Gear Assembly (SUP side), and release the Loading Gear Assembly (SUP) from the 2 hooks by expanding them while taking it off in the free status. During this work, pay careful attention to the hooks not to damage them.
- 24) Disengage the tension spring (24') by a side and escape the Main Brake Assembly from the center hook while taking it off.
- 25) Disengage the tension spring (25') by a side and take off the Take-up Lever.
- 26) Disengage the tension spring (26') by a side and escape the Off Lever Assembly from the center hook while taking it off.
- 27) As the Slider Assembly on the upper side of the deck is removed, disengage the tension spring (27') and expand the center hook while taking off the Tension Lever Assembly.
- 28) Disengage the tension spring on the upper side of the deck, and move the spring base upwards to remove it.
- 29) Remove the 3 screws from the upper side of the deck, release the Capstan Motor from the 2 hooks on the lower part of the deck while taking off the motor.

No.	Part name
11	Capstan brake assembly
11'	Tension spring
12	Slide plate
12'	Tension spring

Table 2-4-4

No.	Part name
13	Cassette housing gear
13'	Slit washer
14	Relay cam
15	S-SW pin (S-VHS)
16	Slide base assembly
17	Reset lever
18	Idler unit
19	Idler cancel lever
19'	Tension spring
20	Clutch gear unit (TU)
20'	Slit washer
21	Clutch gear unit (SUP)
21'	Slit washer
22	Loading gear (TU)
23	Loading gear assembly (SUP)
23'	Screw
24	Main brake assembly (SUP)
24'	Tension spring
25	Take-up lever
25'	Tension spring
26	OFF lever assembly
26'	Tension spring
27	Tension lever assembly
27'	Tension spring
28	Spring base
29	Capstan Motor

Table 2-4-5

4. Disassembling of mechanism assembly in the upper side

- 1) Remove the slit washer (1'), the Pinch Roller Arm Assembly and the compression spring (1'') in this order.
- 2) Release the Pinch Roller Cam from the hook while taking it off.
- 3) Disengage the compression spring (3') and take off the Pinch Roller Lever.

No.	Part name
1	Pinch roller arm assembly
1'	Slit washer
1''	Compression spring
2	Pinch roller cam
3	Pinch roller lever
3'	Compression spring

Table 2-4-6

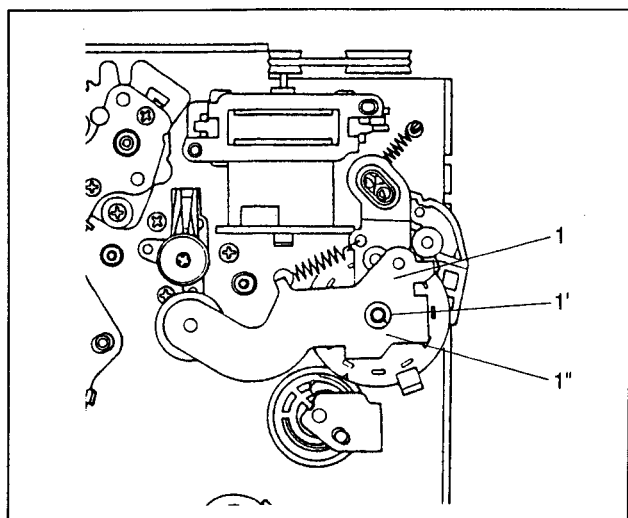


Fig. 2-4-8

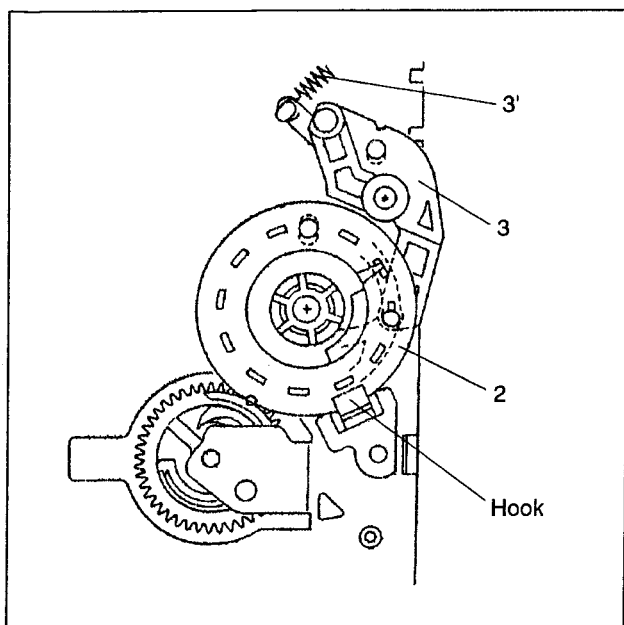


Fig. 2-4-9

2.4.2 Instration of mechanism

1. Precaution before reassembling mechanism

Check that all the mechanism parts on the upper side of the deck are set in the exclusive mechanism operation mode.

2. Instration of mechanism assembly parts in the lower side

- 1) Install the Capstan Motor and tighten it with 3 screws from the upper side of the deck.
- 2) Install the Spring Base and engage the tension spring on the upper side of the deck.
- 3) Install the Tension Lever Assembly and engage the tension spring (3').
- 4) Install the Off Lever Assembly and engage the tension spring (4').
- 5) Install the Take-up Lever and engage the tension spring (5').
- 6) Install the Main Brake (SUP side) and engage the tension spring (6').
- 7) Install the Loading Gear Assembly (SUP side) and fix the arm and the Pole Base Assembly with a screw (7').
- 8) Confirm the mechanism mode that is set to the exclusive mechanism operation mode, and install the Loading Gear (TU side) with the hole gined with the hole on the Loading Gear Assembly (SUP side) as the Tension Arm is returned to the front side.
- 9) Install the Clutch Gear (SUP side) and the slit washer (9') with care not to contact with the Main Brake.
- 10) Install the Clutch Gear Unit (TU side) and the slit washer (10').
- 11) Install the Idler Cancel Lever and engage the tension spring (11').
- 12) Install the Idler Unit.
- 13) Install the Reset Lever.
- 14) Install the Slide Base Assembly with care of re-engaging the tension spring on the upper side of the deck.
- 15) Install the S-switch (S-VHS) pin.
- 16) Install the Relay Cam whith the hole aligned with hole on the chassis.
- 17) Install the Cassette Housing Gear and the slit washer (17').

No.	Part name
1	Capstan Motor
2	Spring base
3	Tension lever assembly
3'	Tension spring
4	OFF lever assembly
4'	Tension spring
5	Take-up lever
5'	Tension spring
6	Main brake assembly (SUP)
6'	Tension spring
7	Loading gear assembly (SUP)
7'	Screw
8	Loading gear (TU)

Table 2-4-7

No.	Part name
9	Clutch gear unit (SUP)
9'	Slit washer
10	Clutch gear unit (TU)
10'	Slit washer
11	Idler cancel lever
11'	Tension spring
12	Idler unit
13	Reset lever
14	Slide base assembly
15	S-SW pin (S- VHS)
16	Relay cam
17	Cassette housing gear
17'	Slit washer

Table 2-4-8

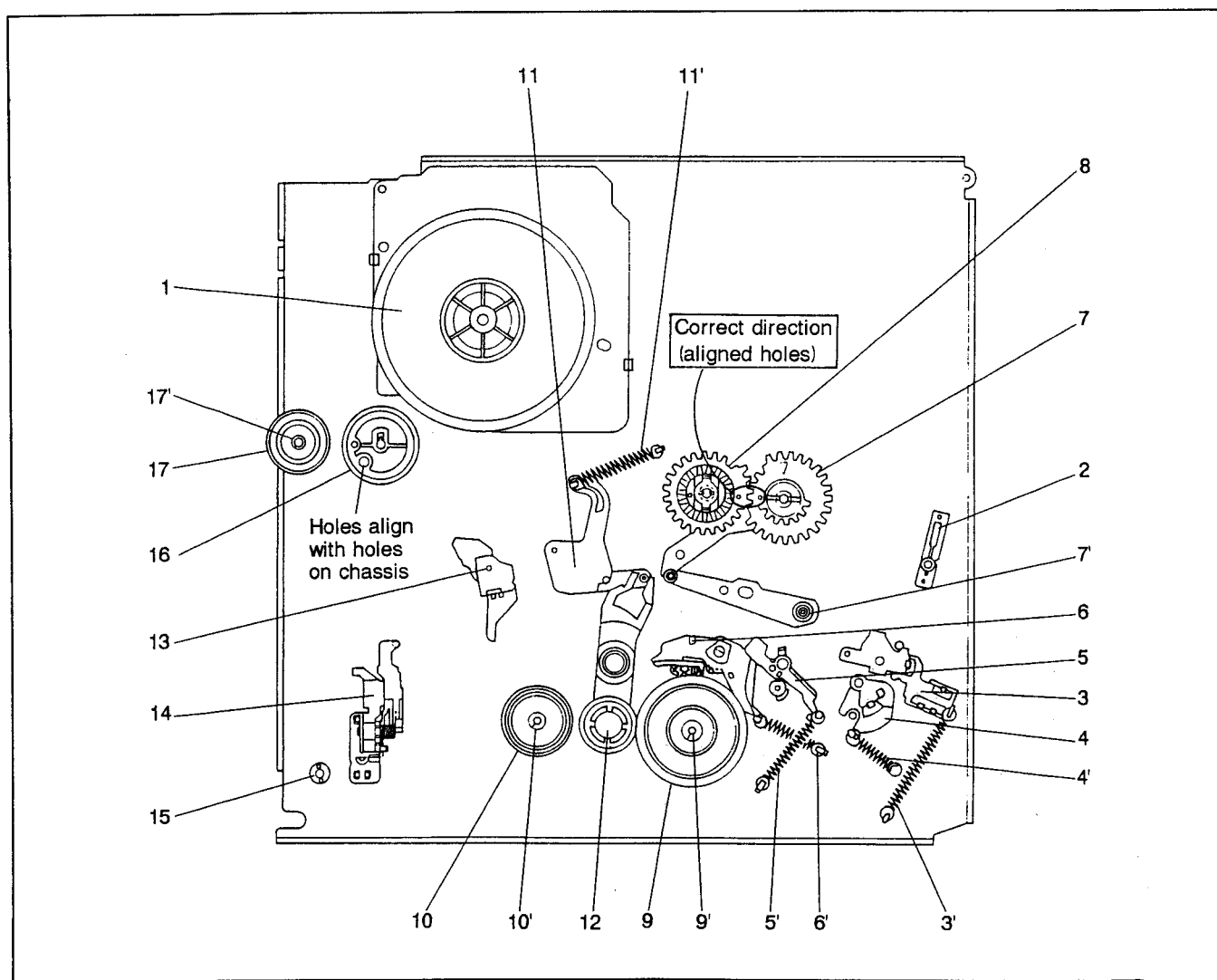


Fig. 2-4-10

- 18) Install the Slide Plate with the lower stud of the Main Brake (TU side) set in the groove, and engage the tension spring (18') . Set the Slide Plate on the deck with the hole aligned with the hole on the chassis in the stage to install the mechanism parts on the upper side of the deck.

Note: *If the Slide Plate is pulled to the phase adjusting position in the above mentioned state, the Main Brake (SUP side) catches the tip of Slide Plate and it is locked accordingly. Do not continue reassembling of the mechanism parts in this condition to prevent the Slide Base Assembly from getting damaged.*

- 19) Install the Capstan Brake Assembly and engage the tension spring (19') .

No.	Part name
18	Slide plate
18'	Tension spring
19	Capstan brake assembly
19'	Tension spring

Table 2-4-9

- 20) Push the Take-up Lever with the two holes alined with the holes on the chassis (see Fig. 2-4-12) . In this condition install the Control Plate and the slit washer (20') .
- 21) Install the Worm Clutch Assembly and engage the belt (for the Mode Motor) between the Worm Assembly and the Loading Motor.

No.	Part name
20	Control plate
20'	Slit washer
21	Worm clutch assembly
21'	Belt

Table 2-4-10

- 22) Push the Idler Cancel Lever while install the Center Gear Unit and the slit washer (22') (see Fig. 2-4-13) with careful attention to the studs of the Idler Cancel Lever and the chassis so that both the studs are correctly set in the upper and the lower grooves of the Center Gear Unit respectively.
- 23) Install the Control Cam with the hole aligned with hole on the chassis. At that time, the stud in the tip of the Slide Base Assembly must be exactly set in the outer groove of the Control Cam.

No.	Part name
22	Center gear unit
22'	Slit washer
23	Control cam

Table 2-4-11

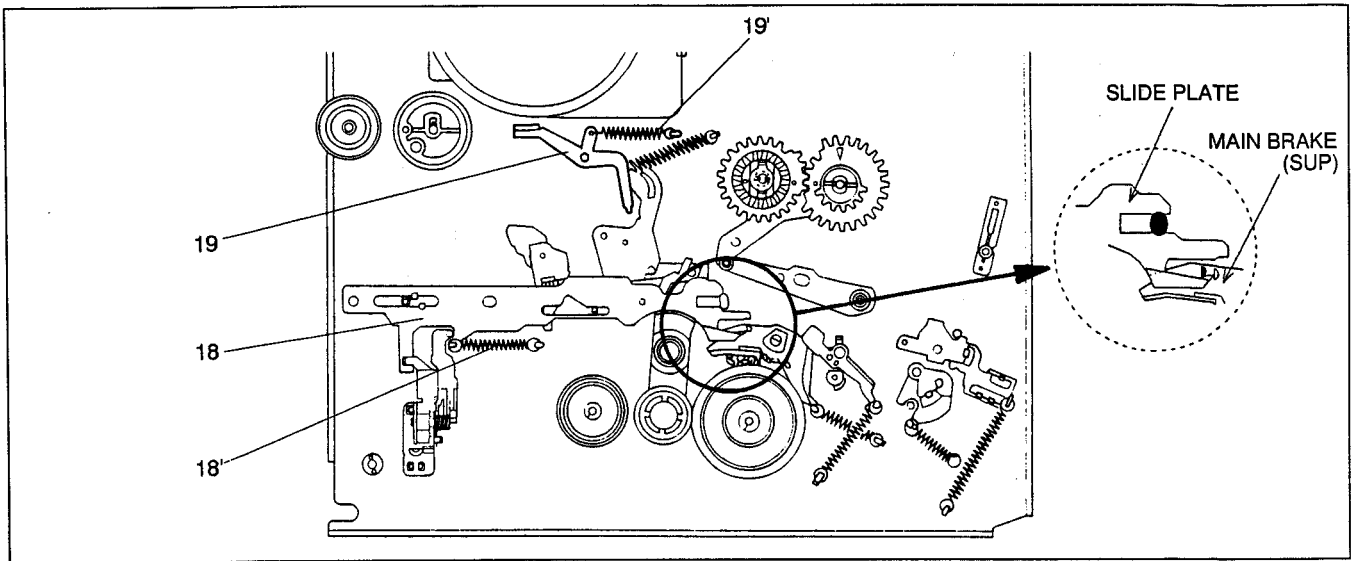


Fig. 2-4-11

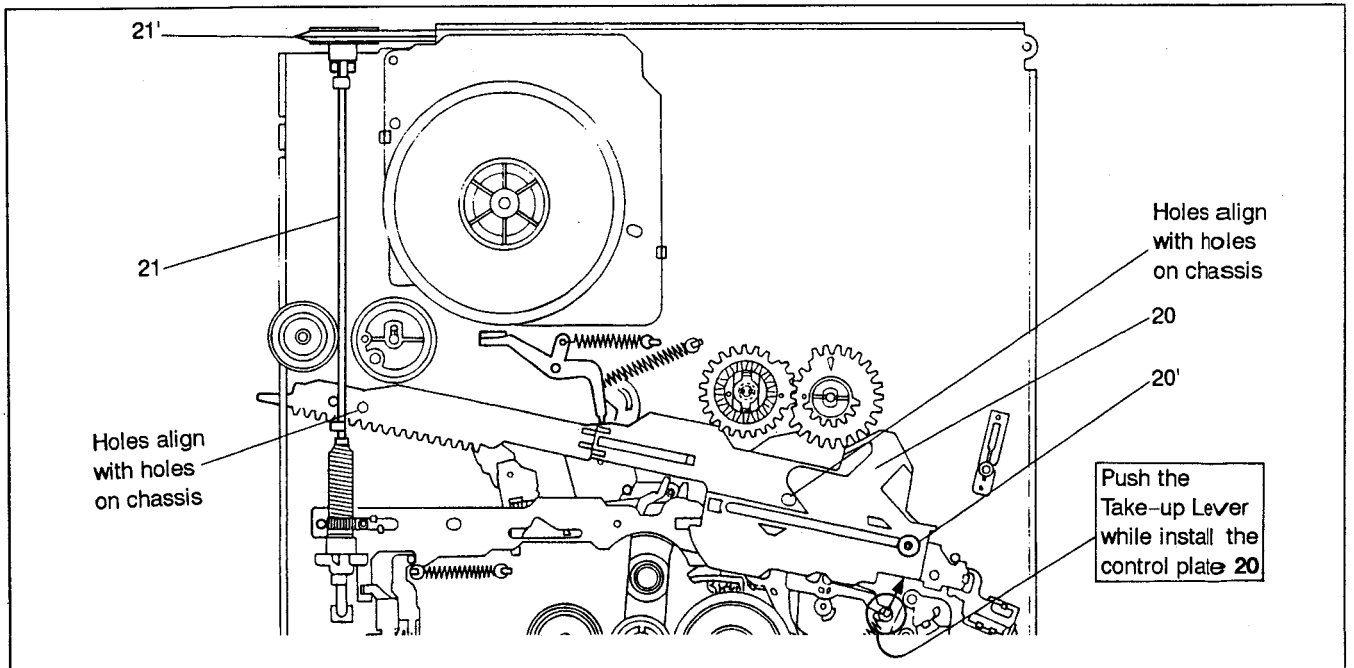


Fig. 2-4-12

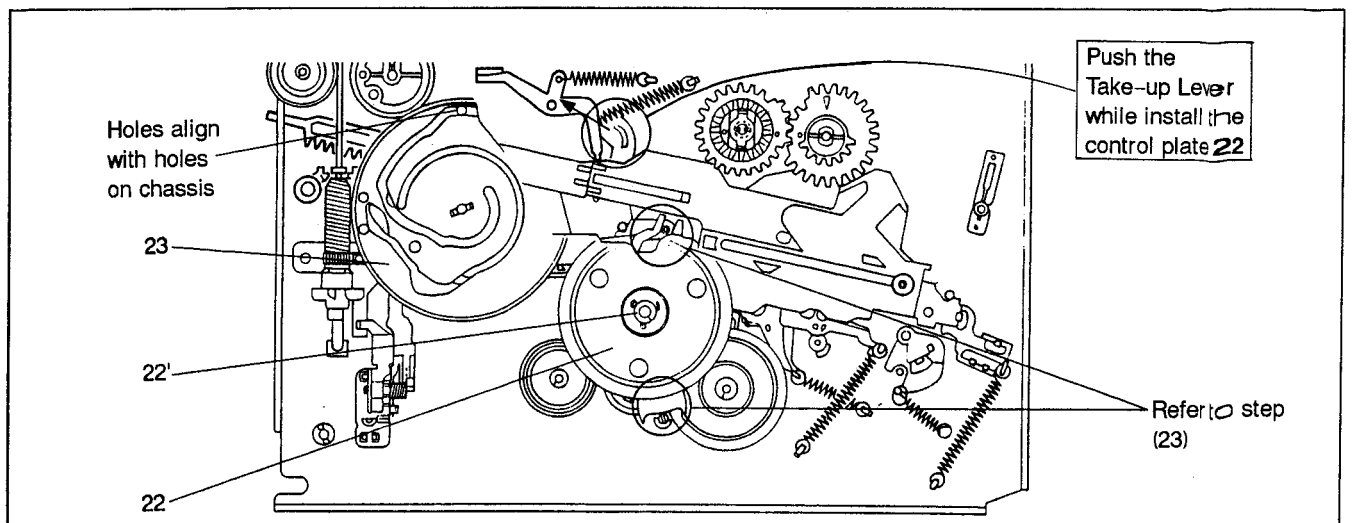


Fig. 2-4-13

- 24) Install the Arm Gear with the hole aligned with the hole on the Loading Gear (TU side) while secure with the slit washer (24'). At that time, make sure to set the stud of the Arm Gear in the groove of the Control Cam exactly.

No.	Part name
24	Arm gear
24'	Slit washer
24"	Tension spring

Table 2-4-12

- 25) When installing the DECK TERMINAL board, proceed in the following order; connect CN2, engage 2 hooks, and tighten the board with 4 screws (25').

When the Rotary Encoder is soldered to the DECK TERMINAL board, confirm that the hole of the Rotary Encoder is correctly positioned first, then install the DECK TERMINAL board and the slit washer.

- 26) Engage the belt (for the Capstan Motor) between the Capstan Motor and the Center Gear Unit.

No.	Part name
25	Deck Terminal board
25'	Screws (x 4)
25"	Connector (CN2)
26	Belt

Table 2-4-13

- 27) Install the Relay Gear.

- 28) Install the Drive Arm Assembly, slit washer (28'), and engage the tension spring (28").

- 29) Install the Rotary Encoder after confirming that the hole is correctly positioned, engage the slit washer (29') and solder the Rotary Encoder.

No.	Part name
27	Relay gear
28	Drive arm assembly
28'	Slit washer
28"	Tension spring
29	Rotary encoder
29'	Slit washer

Table 2-4-14

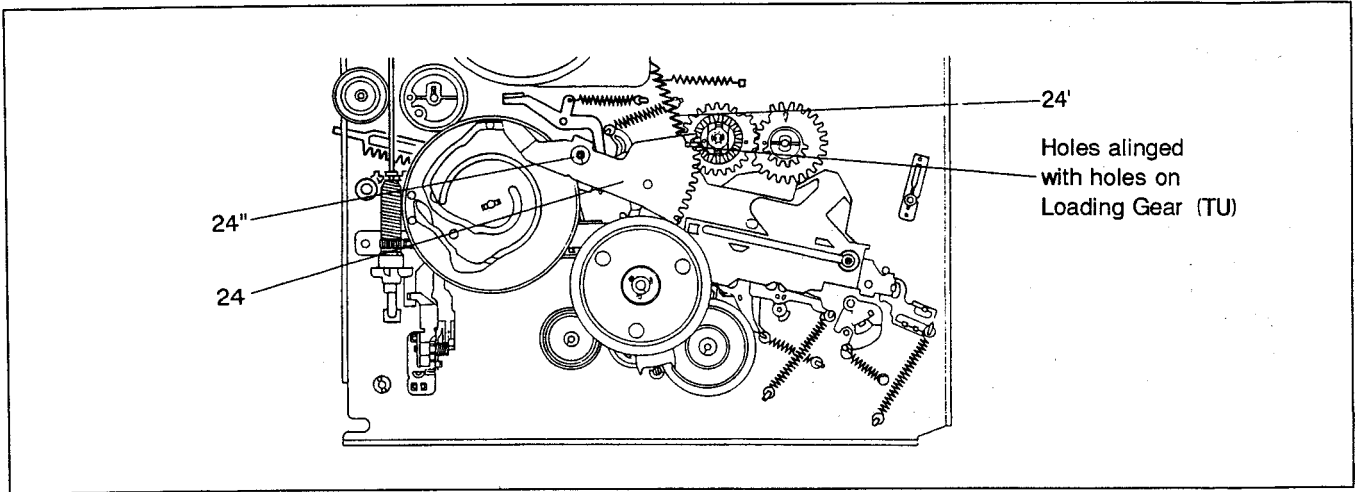


Fig. 2-4-14

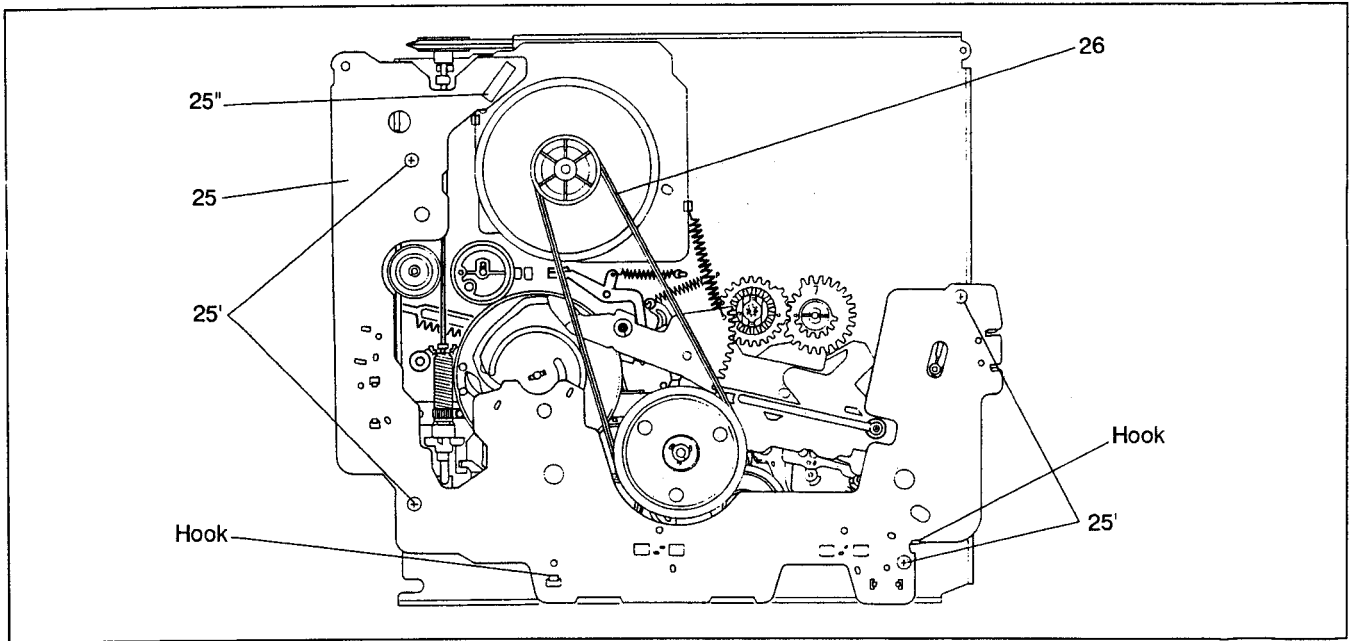


Fig. 2-4-15

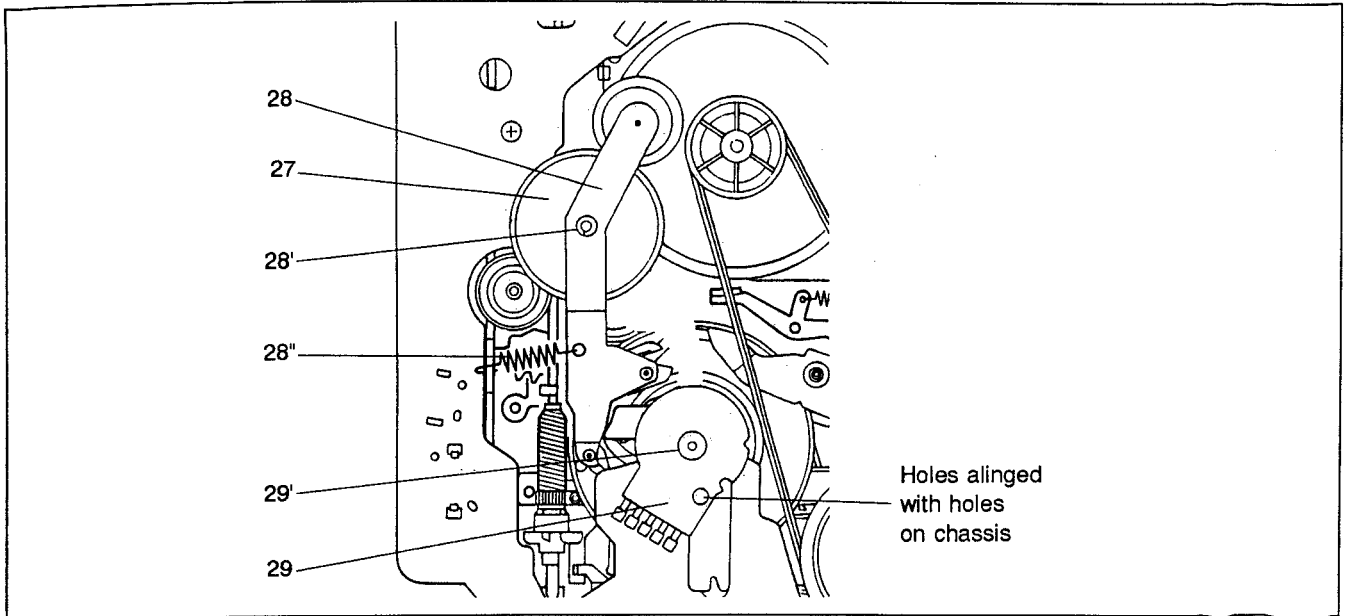


Fig. 2-4-16

2. Reassembling of mechanism assembly parts in the upper side

- 1) Install the Pinch Roller Lever and engage the tension spring (1').
- 2) Install the Pinch Roller Cam as its marking matches with that of the Relay Cam. At that time, the two holes of the Pinch Roller Cam and the chassis should not match completely with each other but double by half as shown in the figure below.
- 3) Set in the compression spring (3'') and install the Pinch Roller Arm Assembly so that the stud of the Pinch Roller Lever is positioned in the elliptical groove of the Pinch Roller Assembly, then engage the slit washer (3').

No.	Part name
1	Pich roller lever
1'	Tension spring
2	Pinch roller cam

Table 2-4-15

No.	Part name
3	Pinch roller arm assembly
3'	Slit washer
3''	Compression spring

Table 2-4-16

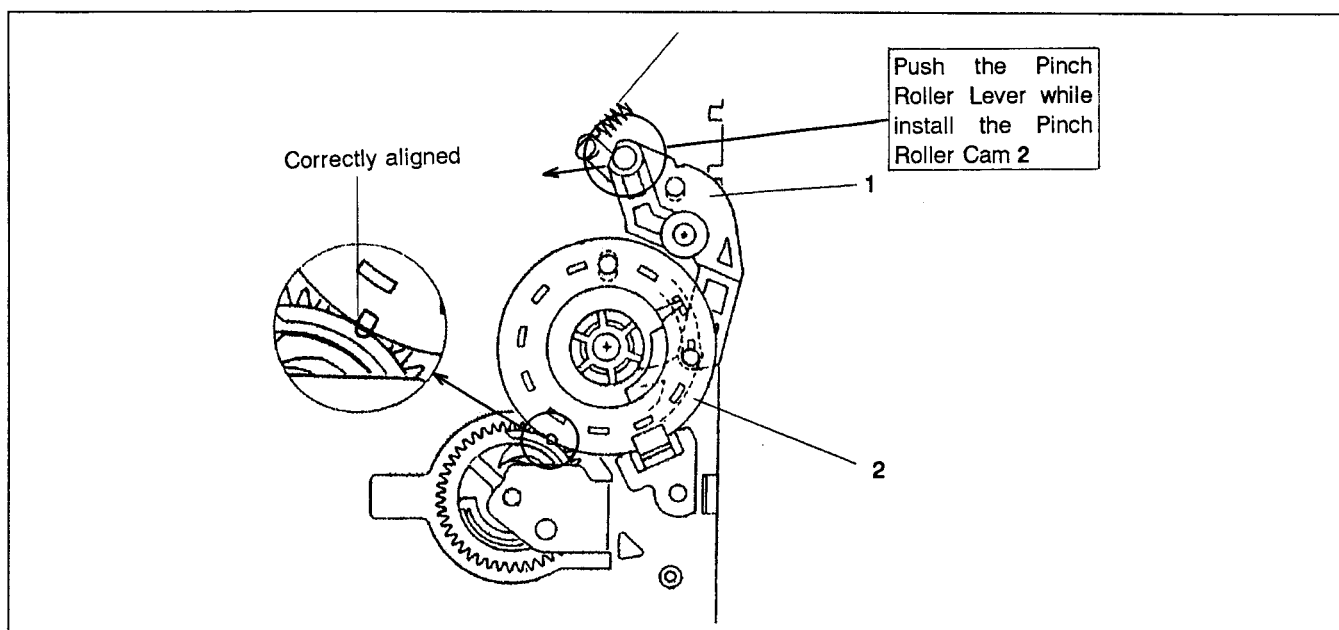


Fig. 2-4-17

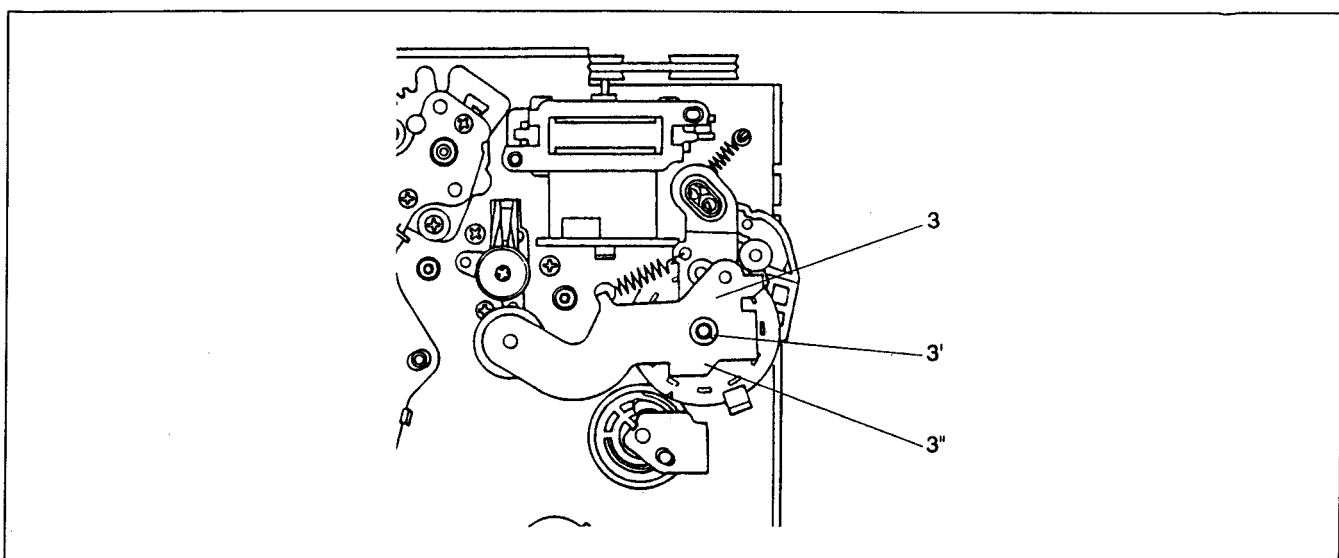


Fig. 2-4-18

2.5 Quick advice

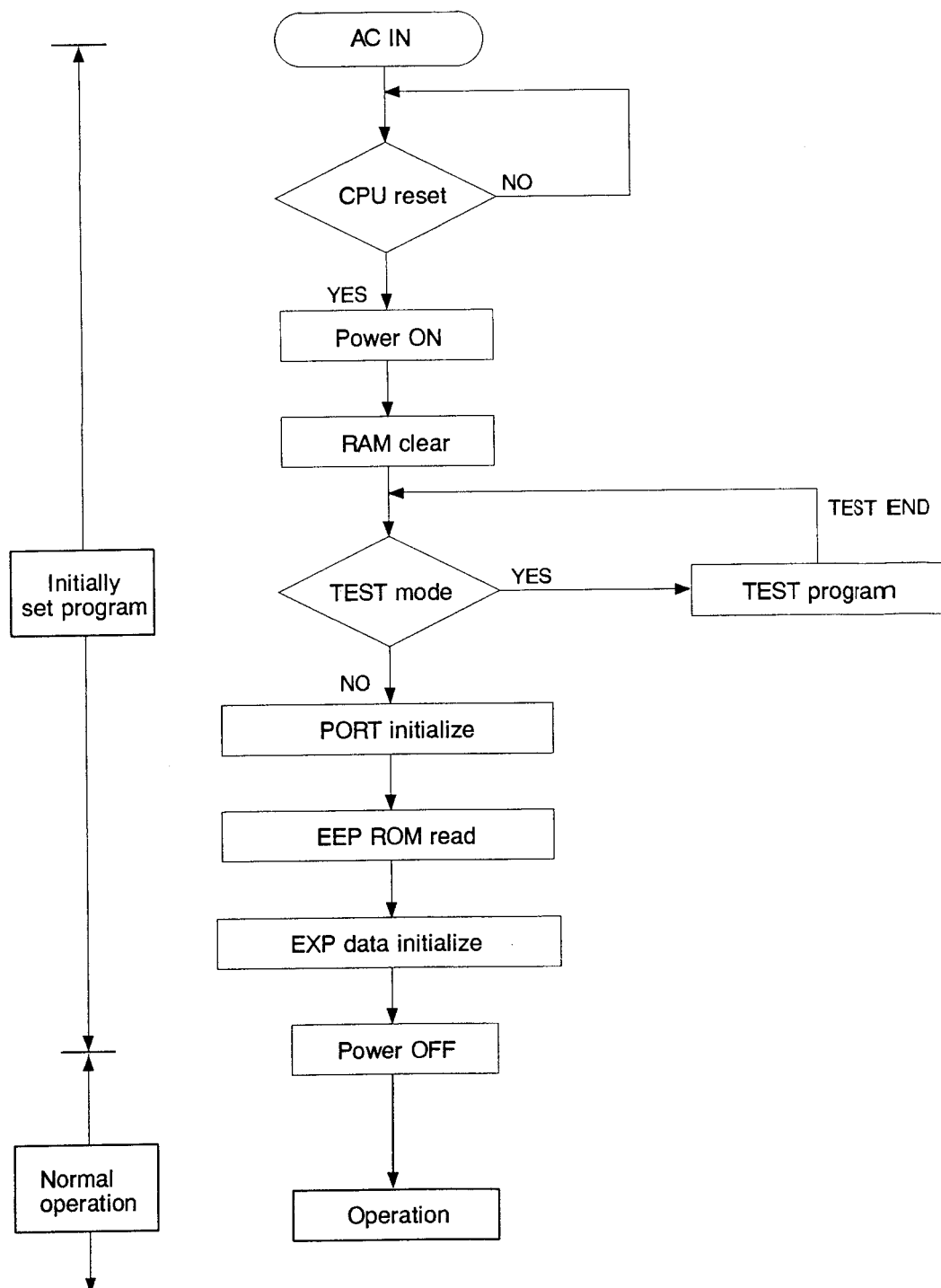
1. Check of faulty mechacon CPU

The following flowchart shows the initially set program that the mechacon CPU executes just after the AC power is supplied to the set.

If this program is not executed normally, the set is inoperable or falls in malfunction. For example, the case of "operation unacceptable" is mostly interpretable as the initial program is not executed normally. Generally, this trouble is not caused by problems of

the mechacon CPU itself but results from something faulty in the peripheral parts (elements) of the CPU. This phenomenon rather occurs in this model since it transmits information of operation switches and sensors to the CPU in serial data through the input EXP. IC.

Therefore, this set needs to check the EXP. IC, EEPROM, etc. besides Vcc, X'tal and so forth of the mechacon CPU.



2.6 MAIN PARTS REPLACEMENT AND ADJUSTMENT

2.6.1 Stator assembly

- 1) Expand the hook in the direction indicated by the arrow and remove the Cleaner Assembly.
- 2) Take out 1 screw (D), then remove the Earth Plate.
- 3) Take out 2 screws (A).
- 4) Raise the Stator Assembly in the direction indicated by the arrow to remove it (also remove the Inertia Roller).
- 5) Remove the flat cable.
- 6) To install, first secure the flat cable, then insert 2 screws (A).
- 7) After installing, be sure to perform switching point adjustment.

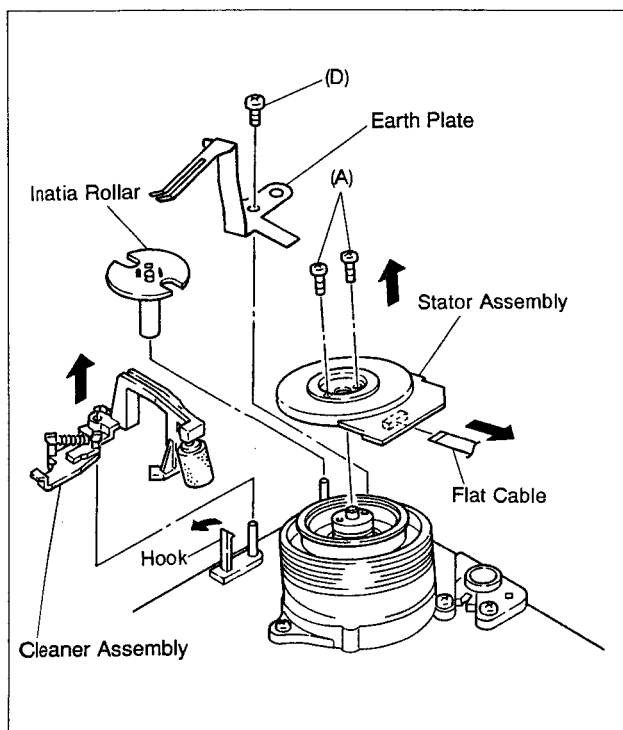


Fig. 2-6-1 Stator assembly

2.6.2 Rotor assembly

- 1) Remove the Cleaner Assembly, Earth Plate and Stator Assembly.
- 2) Take out 2 screws (B) and remove the Rotor Assembly.

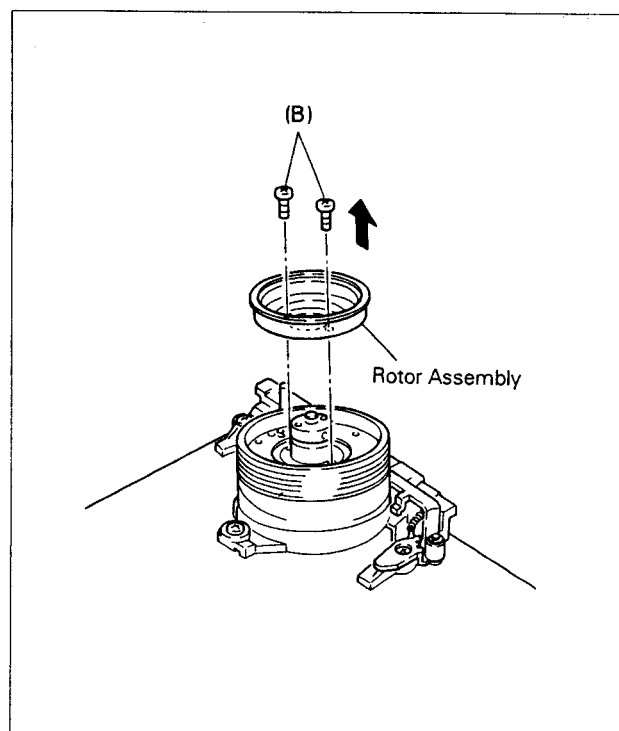


Fig. 2-6-2 Rotor assembly-1

Note: A normal picture will not be obtained unless the phase is properly aligned when installing the Rotor Assembly. Also note there are three types of Rotors.

- 3) Align the Upper Drum and Rotor Assembly phase as indicated in Fig. 2-6-3.
- 4) Overlap holes (a) of the Upper Drum with holes (b) of the Rotor Assembly (align holes in 3 locations) and secure with 2 screws (B) (see Fig. 2-6-2).

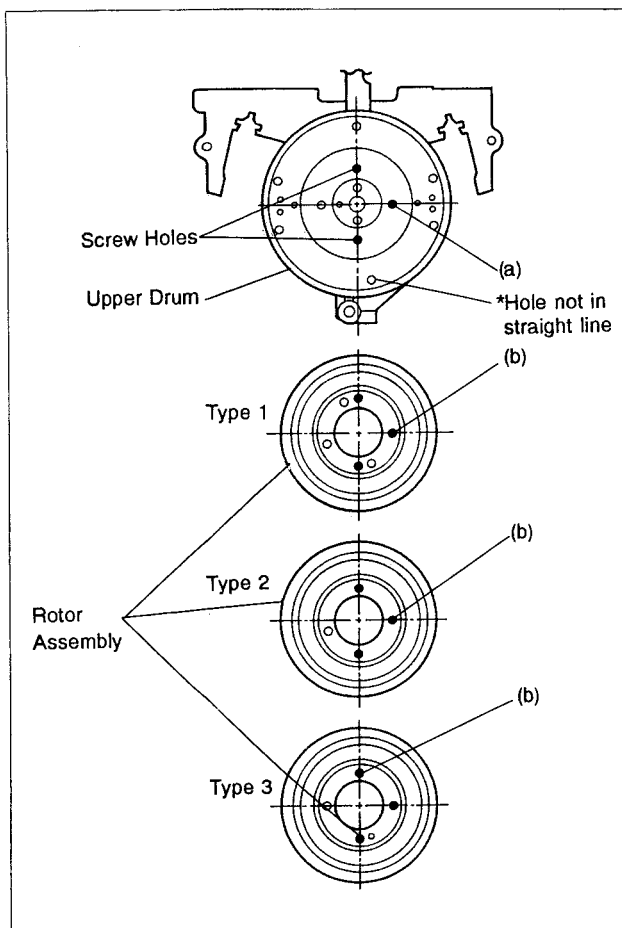


Fig. 2-6-3 Rotor assembly-2

2.6.3 Drum sub assembly

- 1) Disengage the PRE/REC AMP board connector and flat cable.
- 2) Take out 3 screws (C) and remove the Drum Subassembly.

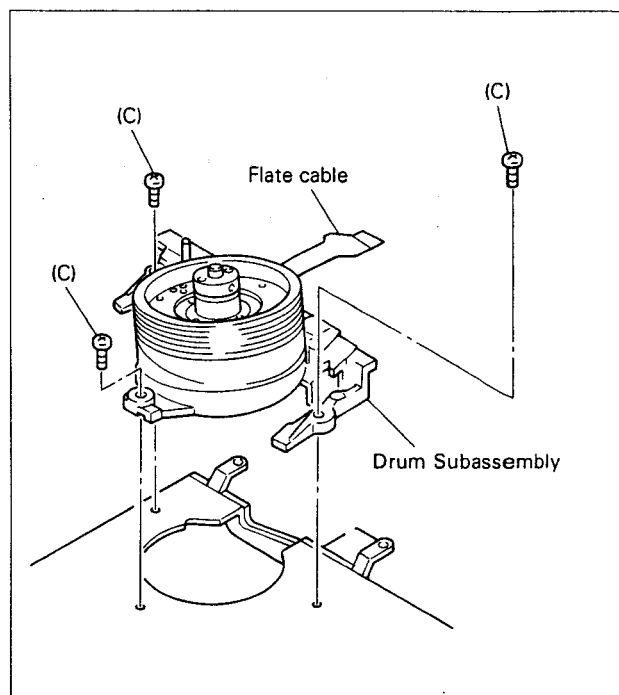


Fig. 2-6-4 Drum sub assembly

2.6.4 Upper Drum assembly

1. Removal

- 1) Remove the Stator and Rotor Assemblies.
- 2) Use a 1.5 mm hexagonal wrench to loosen the Collar Assembly screw and remove the Collar Assembly.
- 3) Remove the Upper Drum Assembly and use tweezers to remove the Washer.

Note: As grease is applied to the Brush, use care to avoid contamination by dirt or other foreign matter. If the Brush is replaced, use care regarding top and bottom direction and be sure to apply the specified grease (PTU94014A) to the contact sections (2 locations).

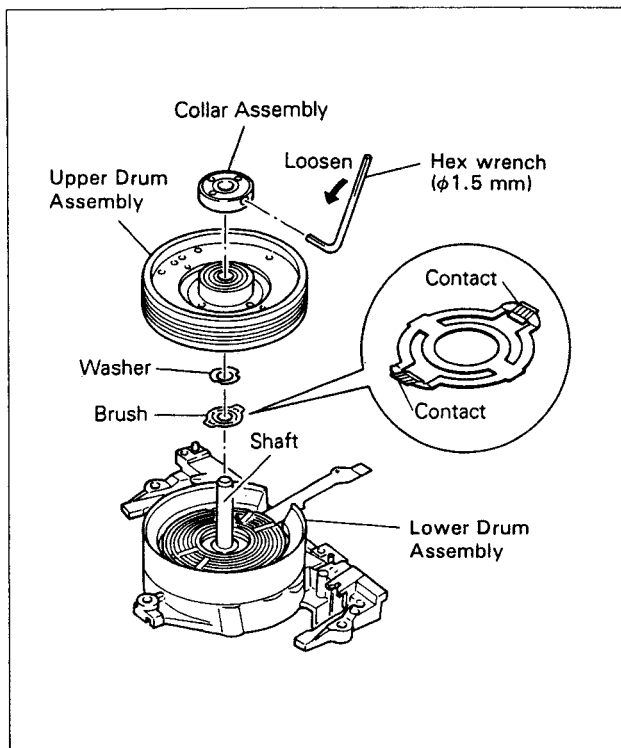


Fig. 2-6-5 Upper drum assembly-1

2. Installation

- 1) Use an air brush to clean the Lower Drum Assembly and the coil section of the new Upper Drum Assembly.
- 2) Set a new Washer and Upper Drum Assembly on the Drum shaft (see Fig. 2-6-5).

Note: Be sure to use the new Washer supplied with the replacement Upper Drum Assembly.

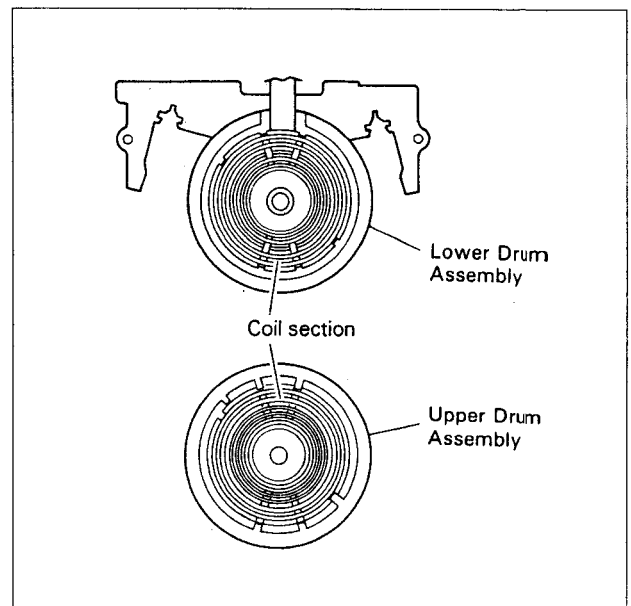


Fig. 2-6-6 Upper drum assembly-2

- 3) Note the top and bottom of the Collar Assembly and determine the position as indicated in Fig. 2-6-7.

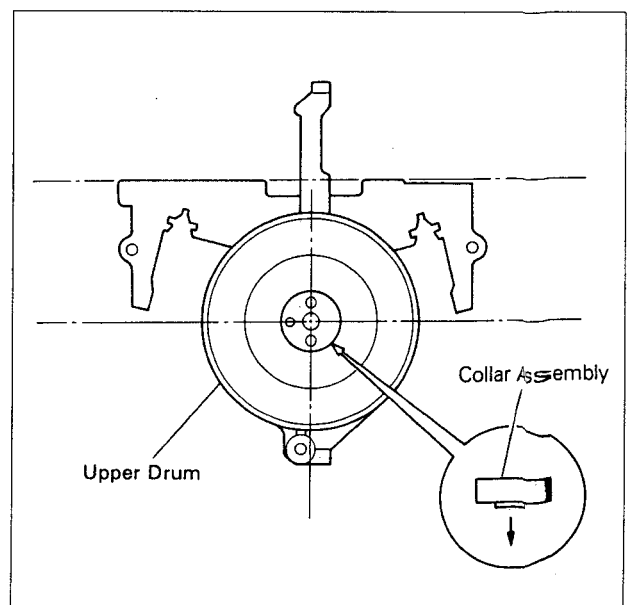


Fig. 2-6-7 Collar assembly-1

- 4) While pressing the Collar Assembly evenly from above with the fingertips, secure the hexagonal screw.

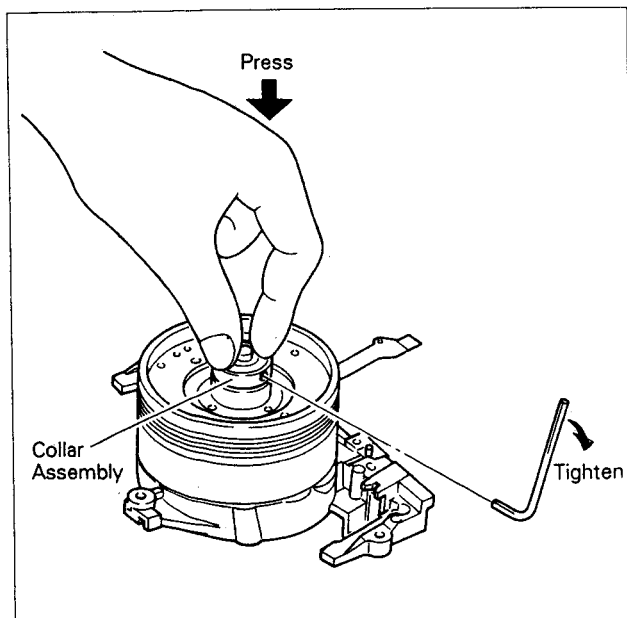


Fig. 2-6-8 Collar assembly-2

- 5) After installing, gently turn the Upper Drum by hand and confirm normal rotation.
- 6) Install the Rotor and Stator Assemblies.
- 7) Clean the Upper and Lower Drum Assemblies and perform the following adjustments;
 - Switching Point Adjustment
 - Interchangeability Adjustment (be sure to check EP mode)
 - Recording color level Adjustment

2.6.5 A/C head

1. Removal

- 1) Take out 2 screws ① and remove the A/C head arm assembly.

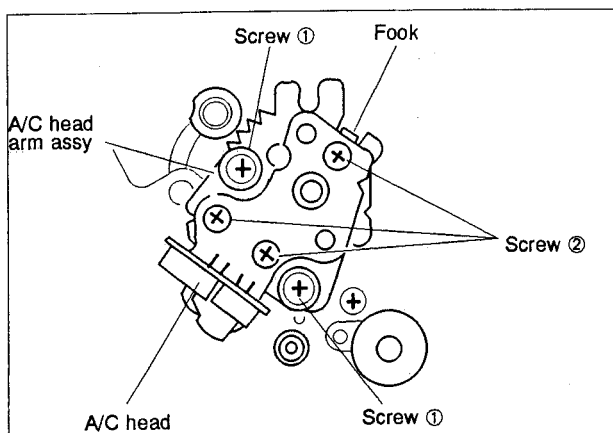


Fig. 2-6-9 A/C head replacement-1

- 2) When replace only A/C head. Remove 3 screws ②, use care not to misplace the 3 springs.

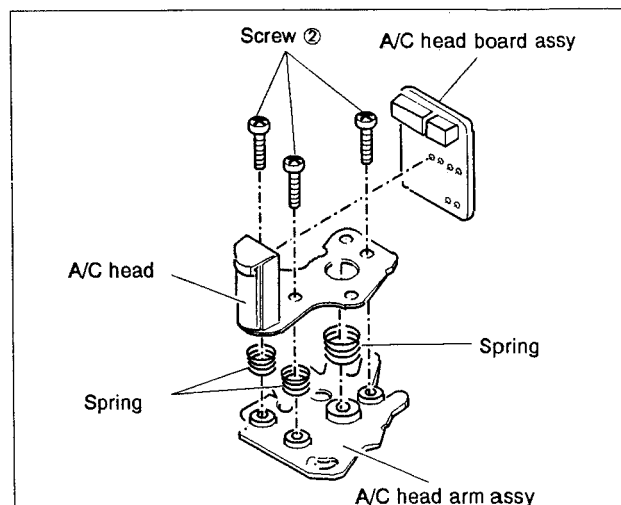


Fig. 2-6-10 A/C head replacement-2

2. Installation

- 1) Temporarily set the A/C head height as indicated in Fig. 2-6-11.

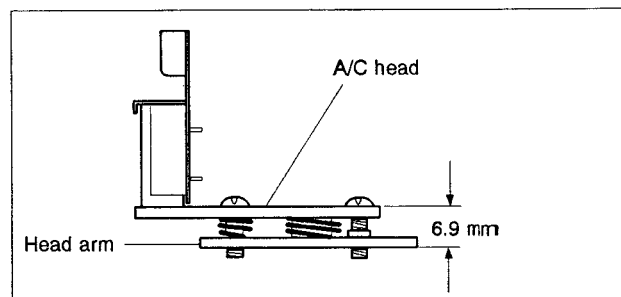


Fig. 2-6-11 A/C head height

- Notes:**
- It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.
 - Perform interchangeability adjustments after electrical adjustments.

2.7 TAPE INTERCHANGEABILITY ADJUSTMENT

Note: *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components (A/C head, drum assembly, etc.).*

2.7.1 Tilt adjustment of A/C head

- 1) Use blank tape and set for playback.
- 2) Turn 1 screw ① clockwise to where the tape curls just slightly at the take-up guide pole bottom flange, as shown in Fig. 2-7-1.
- 3) Then slowly turn screw ① counter-clockwise to where the curling ceases.

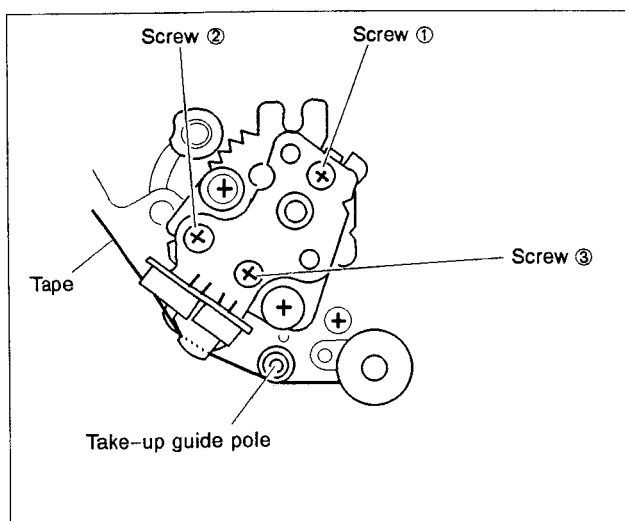


Fig. 2-7-1 A/C head tilt adjustment

2.7.2 Azimuth adjustment of A/C head

- 1) Connect the oscilloscope to the audio output jack on the rear of the deck.
- 2) Playback the staircase portion (7 kHz, Mono) of the alignment tape.
- 3) Adjust 1 screw ② on the A/C head arm assembly in Fig. 2-7-1 so that the audio output is both maximum and with minimum fluctuation.

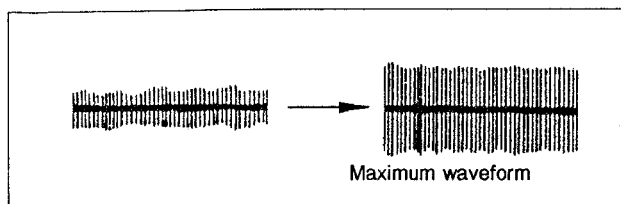


Fig. 2-7-2 A/C head azimuth adjustment

2.7.3 Height adjustment of A/C head

- 1) Playback the blank tape and observe the control head area.
- 2) Turn screws ①, ② and ③ by small and equal increments (about 45° at a time) to adjust the A/C head height for equal width can be seen, by both core area as shown in Fig. 2-7-3 (upper core of the audio erase head and bottom core of the control head).
- 3) Confirm that the azimuth adjustment (2.7.2), if necessary adjustment it.

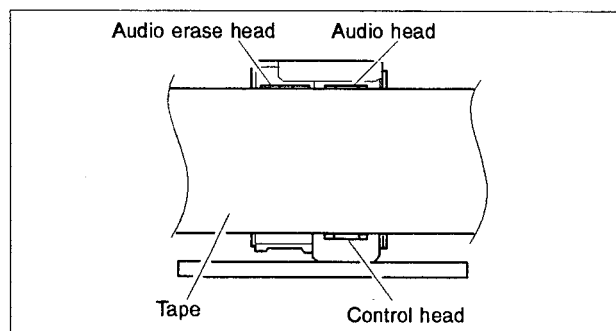


Fig. 2-7-3 A/C head height adjustment

2.7.4 Phase (X-value) adjustment of A/C head

- 1) Playback the staircase portion of the alignment tape [MH-1].
- 2) Connect the oscilloscope to TP306 (PB FM) on the MAIN board. Use TP411 (DRUM FF) as a trigger. Confirm that the FM waveform appears, as in Fig. 2-7-5.
- 3) Set the neutral manual tracking position, by simultaneously press of the (+) and (-) tracking buttons.
- 4) If adjustment is required, slightly loosen screws ④ and ⑤. Set A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 2-7-4.
- 5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 2-7-5.
- 6) Tighten screw ⑤. Remove the tool and tighten screw ④.
- 7) Eject the tape and then re-insert alignment tape [MH-1L]. Playback the staircase of the alignment tape. Set the neutral manual tracking position.
- 8) Confirm maximum playback FM waveform output level as shown in Fig. 2-7-5.
- 9) If not maximum, slightly loosen the screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.

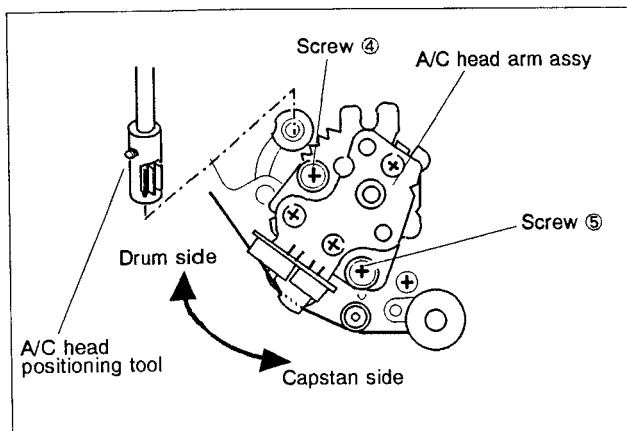


Fig. 2-7-4 A/C head phase adjustment-1

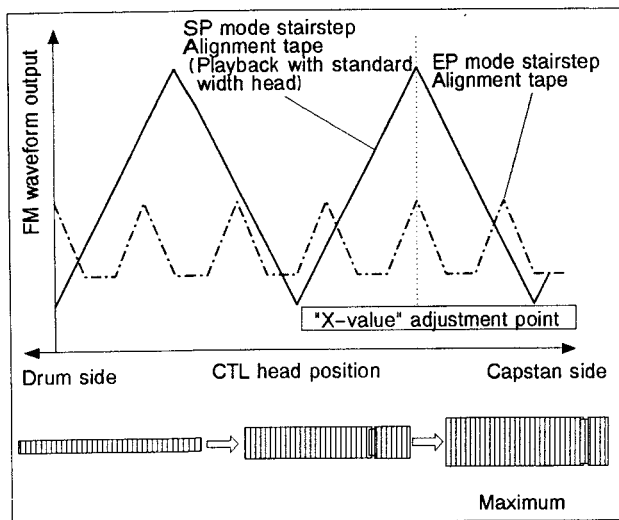


Fig. 2-7-5 A/C head phase adjustment-2

2.7.5 EP mode auto tracking

- 1) Playback the stairstep of the alignment tape [MH-1L].
- 2) Confirm that the A/V digital tracking LED changes coming on from flickering.
- 3) Press the "D" button of the presetting unit [PTU94008] to turn off the A/V digital tracking LED.
- 4) Press the "D" button again to change the mode to the EP interchangeability adjustment mode and confirm that the A/V digital tracking LED changes to coming out from flickering.

Note: When the MH-1L alignment tape is automatically ejected from the cassette housing, repeat the above adjustment (phase adjustment of A/C head, sec. 2.7.4).

2.7.6 Tension pole position

- 1) Turn the eccentric adjust pin to align the notch of the pin with the mark as shown in Fig. 2-7-6.
- 2) Set the cassette housing assembly. Use the back tension cassette gauge and set for the playback mode.
- 3) Confirm reading of 35 to 48 g·cm.

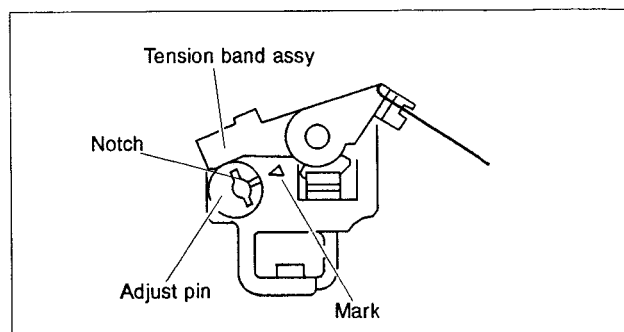


Fig. 2-7-6 Tension pole position

2.7.7 Clutch assembly adjustment

- 1) Remove cassette housing and set for playback mode (Refer to sec. 2.1.2).
- 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 to 100 g·cm.

2.7.8 SUP/TU pole base adjustment

This is the most important adjustment. If incorrect, proper tracking will not be obtained in recording and playback.

Other problems that may occur are noise in parts of the picture, poor color reproduction and picture instability.

- 1) Playback the stairstep portion of the alignment tape [MH-1].
- 2) Connect the oscilloscope to TP306 (PB FM) on the MAIN AMP board. Use TP411 (DRUM FF) as a trigger. Confirm that the RF envelope appears, as in Fig. 2-5-9.
- 3) Operate the tracking adjustment (press the tracking buttons during playback) and set for maximum playback RF envelope waveform.
- 4) If adjustment is required, first slightly loosen the set screw located at the bottom of the guide rollers. Using the guide roller adjustment tool, adjust the supply and take-up guide rollers (refer to Fig. 2-7-8) to obtain the correct waveform. Refer to Fig. 2-7-9.

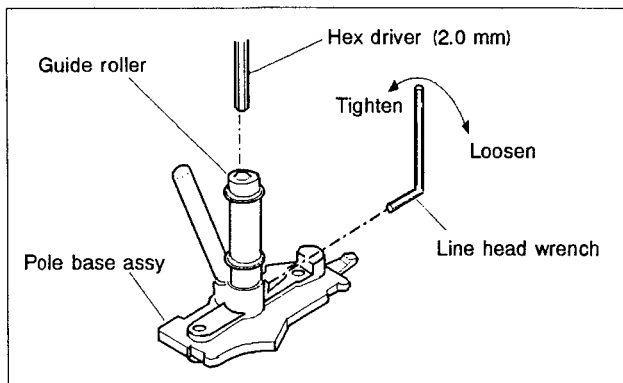


Fig. 2-7-8 SUP/TU pole base assembly

- 5) By pushing the tracking buttons several times, vary the FM waveform output from maximum to minimum (and vice versa) gradually, and confirm that the variation proceeds in a flat shape, as in Fig. 2-7-10.
- 6) If the FM waveform varies and is not mostly flat, tweak the height of guide roller(s) until the RF waveform is as flat as possible.
- 7) Eject a tape and then playback tape again, since the height of guide rollers may move during adjustment. Confirm, when pushing the tracking (+) and (-) buttons, FM waveform variation is always flat.

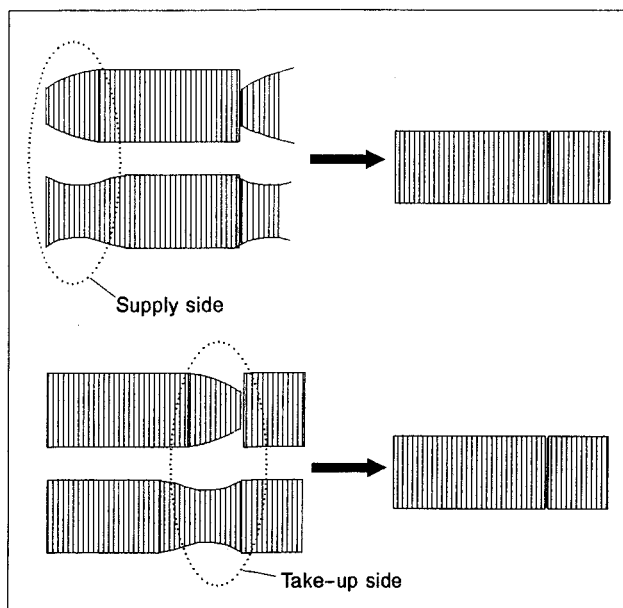


Fig. 2-7-9 FM waveform -1

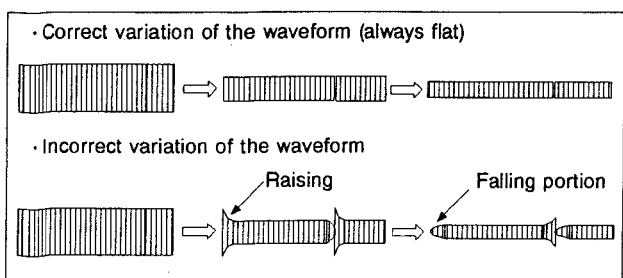


Fig. 2-7-10 FM waveform -2

2.7.9 Tape transport system confirmation

- 1) Use a 140-minute or more long tape and check at the tape beginning and ending portion according to the following steps.
- 2) Confirm absence of curling, wrinkling, slippage, etc at the (a), (b), (c) and (d) portions, as shown in Fig. 2-7-11.
- 3) If curling or wrinkling are observed during the above checks, perform the steps 2.7.1 to 2.7.8.

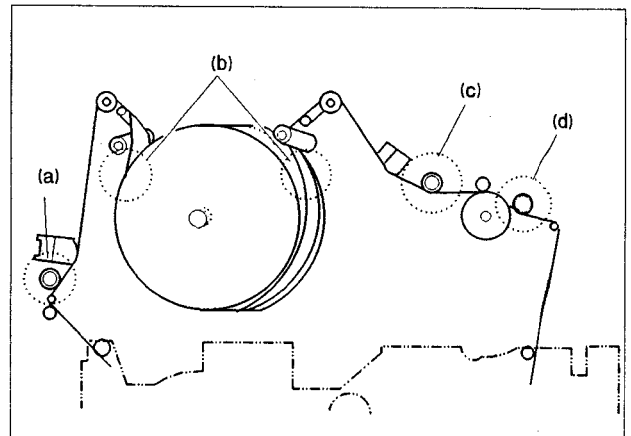


Fig. 2-7-11 Tape transport system

SECTION 3 ELECTRICAL ADJUSTMENT

3.1 DECK SECTION ADJUSTMENT

3.1.1 PRECAUTION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipments is available.

1. Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. AC millivoltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: NTSC color bar, stairstep
9. Recording tape

2. Required adjustment tools

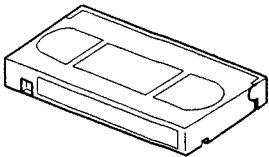
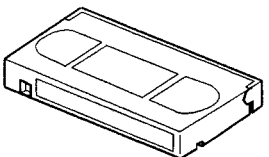
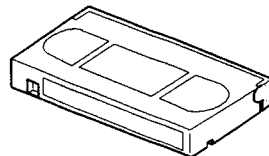
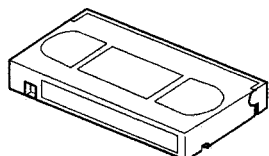
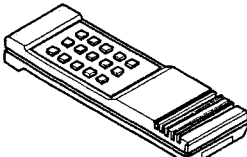
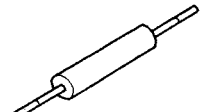
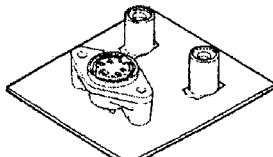
Alignment tape (SP) MH-1	Alignment tape (EP) MH-1L
	
Alignment tape (S-VHS) MH-1H	Alignment tape (FM AUDIO) MH-F1
	
Presetting unit PTU94008	Adjustment driver YTU93004-2
	

Table 3-1-1 (A) Required adjustment tools

RCA-S Adapter PTU930041A	※SMC replacement tools YTU94038A
	

※Note: It is convenient for replacing chip parts.

Table 3-1-1 (B) Required adjustment tools

3. Color bar signal, color bar pattern and video sweep signal

● Color bar signal

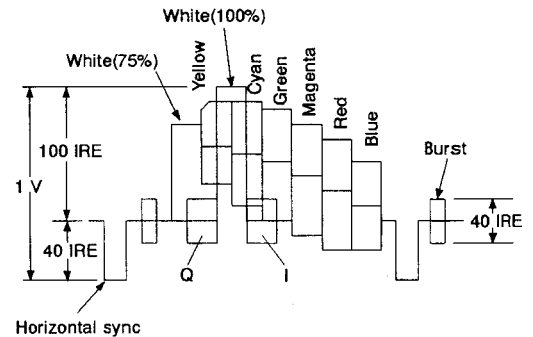


Fig. 3-1-1 Color bar signal waveform

● Color bar pattern

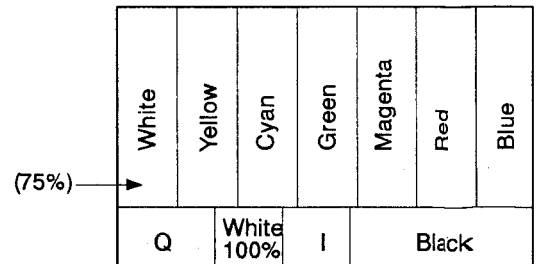


Fig. 3-1-2 Color bar pattern

● Video sweep signal



Fig. 3-1-3 Video sweep signal

● Multi burst signal



Fig. 3-1-4 Video sweep signal

3.1.2 SWITCHING REGULATOR CIRCUIT

Note: Unless otherwise specified, all measurement points and adjustment parts are located on the SWITCHING REGULATOR BOARD.

1. 5V DC output voltage

Signal	•AUX •Color bar
Mode	•REC : SP
Equipment	•Digital voltmeter
Measurement point	•CN3 pin 4 (SWD 5 V) •CN3 pin 3 (GND)
Adjustment part	•R34 (SWD 5 V)
Specification	•5.40 ± 0.05 V DC

- 1) Connect a digital voltmeter to pin 4 of CN3 (SWD 5V) and pin 3 of CN3 (GND).
- 2) Adjust R34 for 5.40 ± 0.05 V DC.

3.1.3 SERVO CIRCUIT

Note: Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.

1. PB switching point

Signal	•Alignment tape (MH-1) •Stairstep
Mode	•PB •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP310 (VIDEO OUT)
Trigger slope (-)	•TP411 (DRUM FF)
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5 H

Note: Set VCR to the mode A by remote controller.

- 1) Connect an oscilloscope to TP310 and TP411.
- 2) Playback the stairstep signal of the alignment tape.
- 3) Set the tracking control to the center position by simultaneously pressing the (+) and (-) buttons.
- 4) Adjust by pressing "B" (+) or "C" (-) buttons of presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.

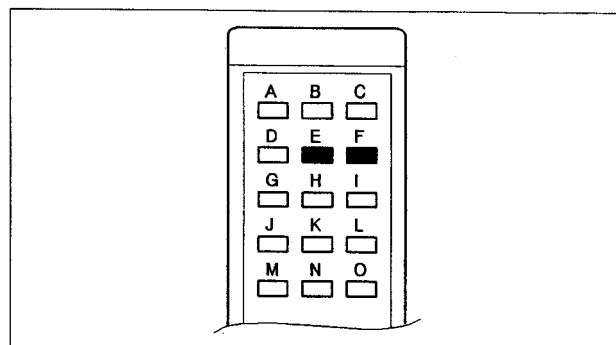


Fig. 3-1-5 Presetting unit

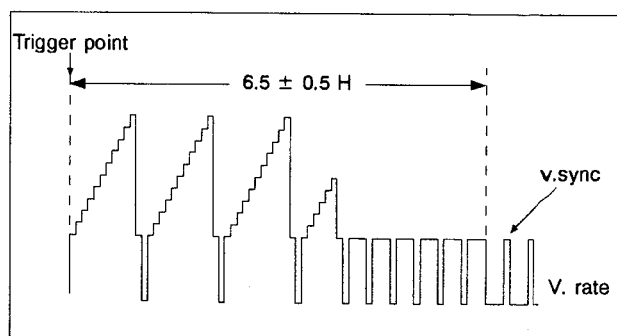


Fig. 3-1-6 PB switching point

2. Slow tracking preset

Signal	•AUX •Color bar
Mode	•REC → PB (SLOW) •SP/EP •Auto tracking : OFF
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit [PTU94008]
Specification	•Minimum noise

Note: Set VCR to the mode A by remote controller.

- 1) Record a color bar signal in the SP mode.
- 2) Playback recorded signal on the FWD slow mode.
- 3) Set the tracking control to the center position by simultaneously pressing the (+) and (-) buttons.
- 4) Observe the display on a TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" (+) or "C" (-) buttons of presetting unit as required.
- 5) Depress the STOP button.
- 6) Confirm that the bar noise is not visible on the monitor in the slow mode.
- 7) Repeat steps 2) to 6) in REV slow mode.
- 8) Repeat steps 1) to 7) in EP mode.

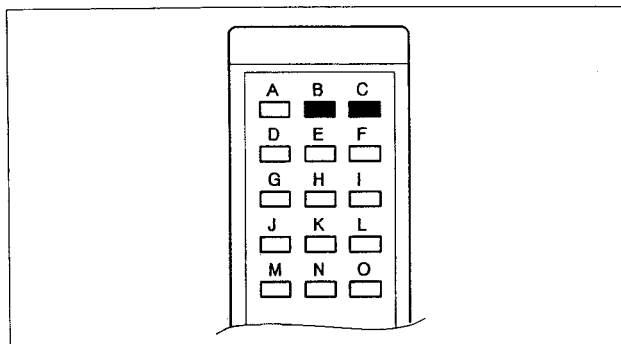


Fig. 3-1-7 Presetting unit

3.1.4 VIDEO CIRCUIT

Note: Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD, and N-VHS mode.

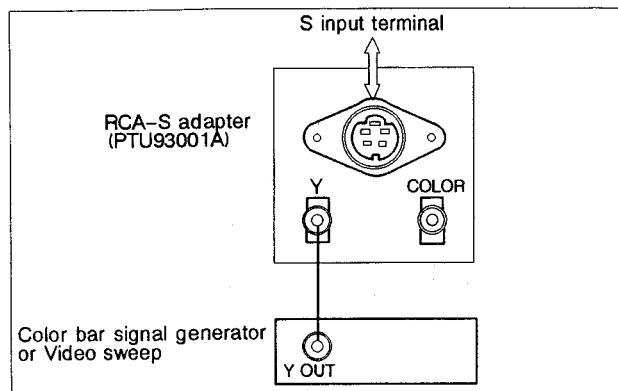


Fig. 3-1-8 S input connection

1. EE Y level

Signal	•S input •Color bar
Mode	•EE •S-VHS : ON
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT) •TP25 (SUB EMPHA IN) [VIDEO BOARD]
Adjustment part	•R303 (EE Y LEVEL) •R9 (SUB EMPHA LEVEL) [VIDEO BOARD]
Specification	•"A" : 0.71 ± 0.02 Vp-p : R303 •"B" : 400 ± 10 mVp-p : R9

- 1) Connect an oscilloscope to TP320.
- 2) Adjust R303 for "A" level is 0.71 Vp-p, as in Fig. 3-1-9.
- 3) Connect an oscilloscope to TP25 and adjust R9 for "B" level is 400 mVp-p, as in Fig. 3-1-9.

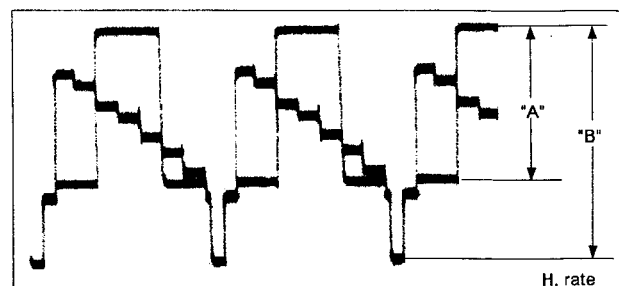


Fig. 3-1-9 EE Y level

2. Y NR level

Signal	•Alignment tape [MH-1L] •EP color bar
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•TP153 (NC IN) [VIDEO board]
Ext. trigger	•TP411 (DRUM FF)
Adjustment part	•R214 (NC BALANCE) [VIDEO board]
Specification	•Minimum DC setup difference

- 1) Connect an oscilloscope to TP153.
- 2) Playback the EP color bar signal of the alignment tape.
- 3) Adjust R214 for minimum DC setup difference, as in Fig. 3-1-10.

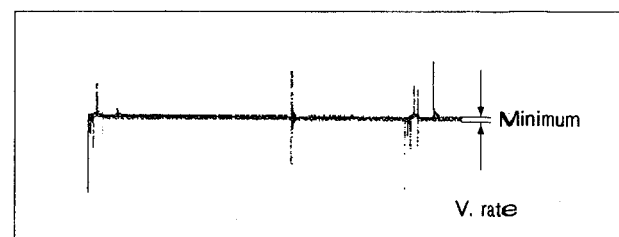


Fig. 3-1-10 Y NR level

3. CNR NC level

Signal	•Alignment tape [MH-1] •SP color bar
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•TP134 (CNR NC) [VIDEO board]
Adjustment part	•R219 (CNR NC BALANCE-1) [VIDEO board] •R220 (CNR NC BALANCE-2) [VIDEO board]
Specification	•Minimum 3.58 MHz level

- 1) Connect an oscilloscope to TP134.
- 2) Playback the SP color bar signal of the alignmet tape.
- 3) Alternately adjust R219 and R220 to minimize the 3.58 MHz level, i.e., so that only the noise component is observable, as in Fig. 3-1-11.

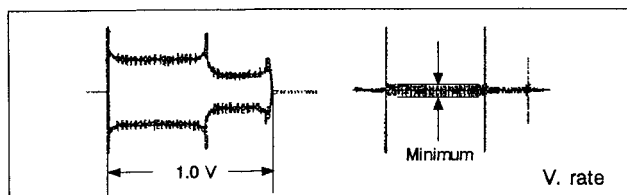


Fig. 3-1-11 CNR NC level

4 C comb level

Signal	•AUX •Multi burst
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP324 (C COMB OUT)
Adjustment part	•R328 (C COMB PHASE) •R333 (C COMB GAIN)
Specification	•Minimum 3.58 MHz level

Note: Confirm that procedure 3.1.4-3. is correct before performing this adjustment procedure.

- 1) Connect an oscilloscope to TP324.
- 2) Adjust R328 and R333 alternately for minimum 3.58 MHz level "A", as in Fig. 3-1-12.

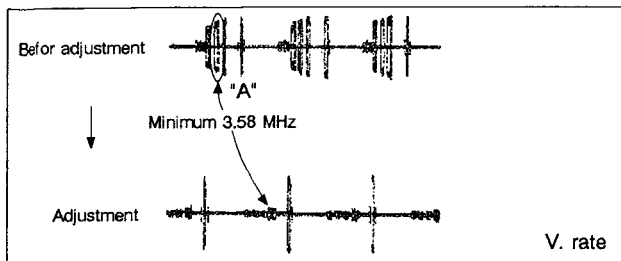


Fig. 3-1-12 C comb level

5. Y comb level

Signal	•AUX •Color bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP4 (W/C CLIP) [VIDEO board]
Adjustment part	•R322 (Y COMB PHASE) •R324 (Y COMB GAIN)
Specification	•Minimum magenta level

Note: Confirm that procedure 3.1.4-4. is correct before performing this adjustment procedure.

- 1) Connect an oscilloscope to TP4.
- 2) Alternately adjust R322 and R324 for minimum chromatic level of the magenta portion, as in Fig. 3-1-13.

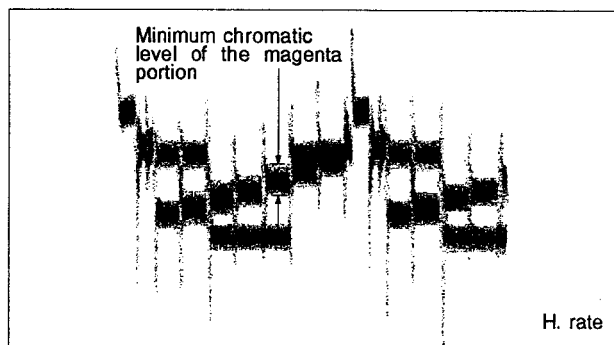


Fig. 3-1-13 Y comb level

6. N PB Y level

Signal	•S input •Color bar
Mode	•REC → PB : SP •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT)
Adjustment part	•R37 (N PB Y LEVEL-1) [VIDEO board] •R247 (N PB Y LEVEL-2)
Specification	•A : 0.71 ± 0.02 Vp-p : R37 •B : 0.29 ± 0.01 Vp-p : R247

- 1) Connect an oscilloscope to TP320.
- 2) Record and playback a color bar signal.
- 3) Adjust R37 so that the video level "A" ≤ 0.71 Vp-p, as in Fig. 3-1-14.
- 4) Adjust R247 so that the sync level "B" ≤ 0.29 Vp-p, as in Fig. 3-1-14.
- 5) Confirm that the Y level "C" is 1.00 ± 0.03 Vp-p, as in Fig. 3-1-14.

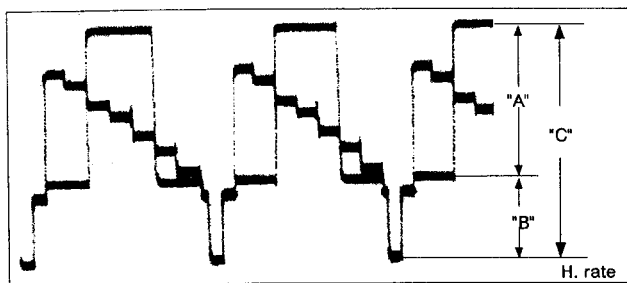


Fig. 3-1-14 N PB Y level

7. S PB Y level

Signal	•S input •Color bar
Mode	•REC → PB : SP •S-VHS •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT)
Adjustment part	•R35 (S PB Y LEVEL) [VIDEO board]
Specification	• 1.00 ± 0.03 Vp-p

- 1) Connect an oscilloscope to TP320.
- 2) Record and playback a color bar signal.
- 3) Adjust R35 for 1.00 ± 0.03 Vp-p, as in Fig. 3-1-15.

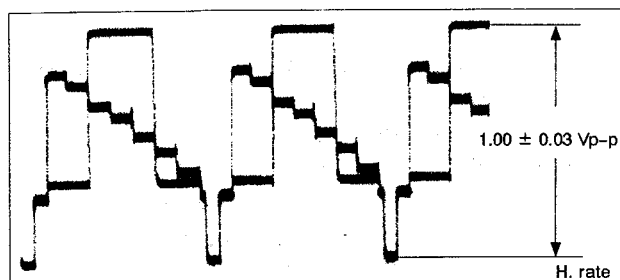


Fig. 3-1-15 S PB Y level

8. S VIDEO EQ

Signal	•S input •Video sweep
Mode	•REC → PB : SP/EP •S-VHS •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT)
Adjustment part	•R8 (S SP VIDEO EQ) [REC AMP board] •R11 (S EP VIDEO EQ) [REC AMP board]
Specification	• 3.2 ± 0.2 scale (SP) • 2.8 ± 0.2 scale (EP)

- 1) Connect an oscilloscope to TP320.
- 2) Record a video sweep signal in S-VHS SP mode, then play it back.
- 3) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R8 so that 3.58 MHz marker level becomes 3.2 ± 0.2 scale divisions.
- 4) Record a video sweep signal in S-VHS EP mode, then play it back.
- 5) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R11 so that 3.58 MHz marker level becomes 2.8 ± 0.2 scale divisions.

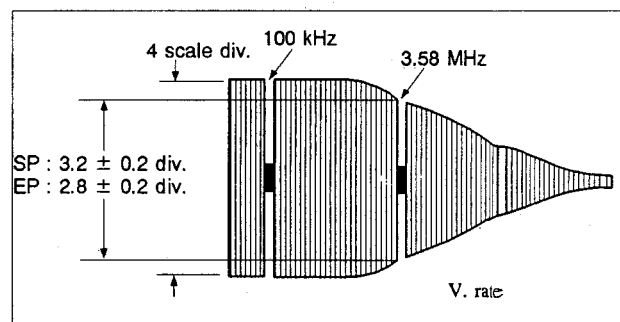


Fig. 3-1-16 S VIDEO EQ

《Alternate method》

- 1) Record a color bar signal in S-VHS SP mode.
- 2) Play it back to observe the picture and adjust R8 for best resolution, without impaired S/N.
- 3) So after adjustment, confirm black or white spot.
- 4) Record a color bar signal in S-VHS EP mode.
- 5) Play it back to observe the picture and adjust R11 for best resolution, without impaired S/N.
- 6) So after adjustment, confirm black or white spot.

9. C comb gain

Signal	•S input •Color bar
Mode	•EE •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP151 (CNR COLOR) [VIDEO board]
Adjustment part	•R108 (COLOR COMB GAIN) [VIDEO board]
Specification	•"A" $\times 100 \pm 5 \%$

- 1) Observe waveform at TP151, and make a note of the color level "A", as in Fig. 3-1-17.
- 2) Short TP154 to TP-GND1 of the video board.
- 3) Adjust R108 so that the color level becomes $100 \pm 5 \%$ of the noted "A" level, as in Fig. 3-1-17.
- 4) Remove the short wire.

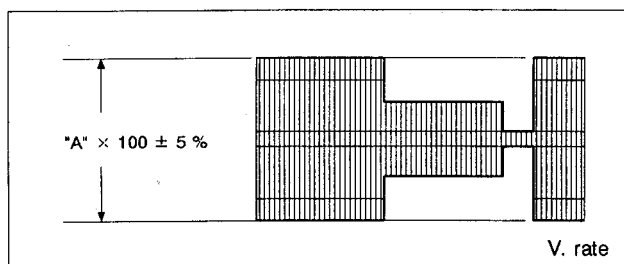


Fig. 3-1-17 C comb gain

10. C comb phase

Signal	•Alignmet tpe [MH-1H] •SP color bar
Mode	•PB
Equipment	•TV monitor
Adjutment part	•L101 (COLOR COMB PHASE) [VIDEO board]
Specification	•Same color

Note: Confirm that procedure 3.1.4-9. is correct before performing this adjustment procedure.

- 1) Connect a S cable between the S input terminal of the TV monitor and S output terminal of this model.
- 2) Connect $0.047 \mu F$ capacitor between TP411 and TP153 of the video board.
- 3) Playback the SP color bar signal of the alignment tape.
- 4) Adjust L101 to obtain magenta portion of color bar picture get same color, especially applied impulse area.

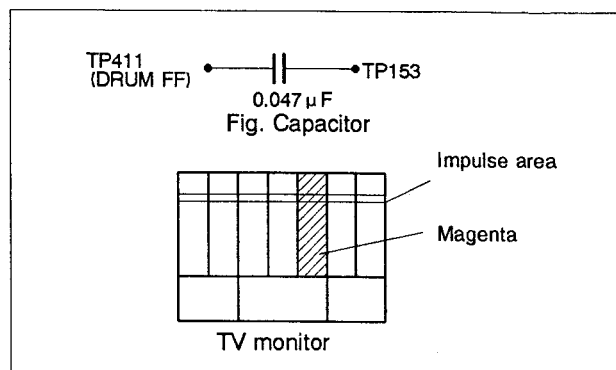


Fig. 3-1-18 C comb phase

11. SP REC color level

Signal	•Alignment tape [MH-1H] •SP color bar
Mode	•PB •REC → PB : SP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP356 (PB COLOR)
Ext. trigger	•TP411 (DRUM FF)
Adjustment part	•R51 (SP REC COLOUR LEVEL) [REC board]
Specification	•"A" $\times 140 \pm 5 \%$

- 1) Playback the SP color bar signal of the alignment tape.
- 2) Observe waveform at TP356 with external trigger from TP411.
- 3) Adjust by pressing the tracking buttons on the front panel for maximum color level.
- 4) Make a note of the higher channel level as "A".
- 5) Record the color bar signal, and play it back to observe waveform at TP356.
- 6) Adjust R51 repeatedly in recording so that the higher channel level is $"A" \times 140 \pm 5 \%$ in playback, as in Fig. 3-1-19.

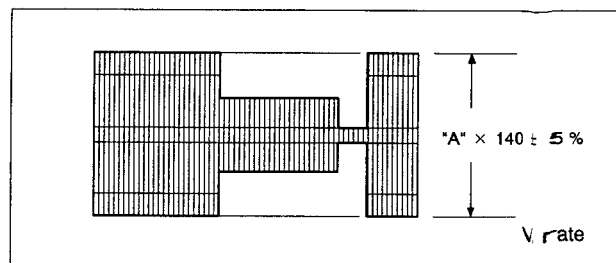


Fig. 3-1-19 SP REC color level

12. EP REC color level

Signal	•Alignment tape [MH-1H] •EP color bar
Mode	•PB •REC → PB : •EP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP356 (PB COLOR)
Ext. trigger	•TP411 (DRUM FF)
Adjustment part	•R49 (EP REC COLOUR LEVEL) [REC board]
Specification	•"A" $\times 100 \pm 5 \%$

- 1) Playback the EP color bar signal of the alignment tape.
- 2) Observe waveform at TP356 with external trigger from TP411.
- 3) Adjust by pressing the tracking buttons on the front panel for maximum color level.
- 4) Make a note of the higher channel level as "A".
- 5) Record the color bar signal, and play it back to observe waveform at TP356.
- 6) Adjust R49 repeatedly in recording so that the higher channel level is "A" $\times 100 \pm 5 \%$ in playback, as in Fig. 3-1-20.

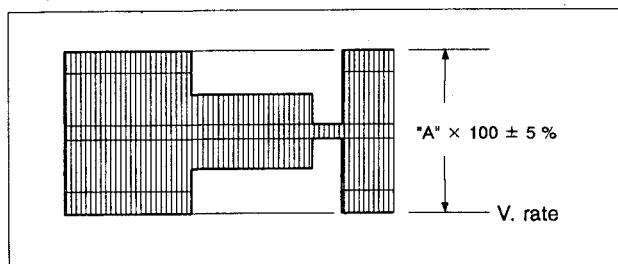


Fig. 3-1-20 EP REC color level

13. LC VCO

Signal	•S input •Color bar
Mode	•REC : SP •S-VHS
Equipment	•Oscilloscope
Measurement point	•Q101 Emitter [VIDEO board]
Adjustment part	•T101 (LC VCO) [VIDEO board]
Specification	•629.36 ± 20.00 kHz

- 1) Connect 10 k Ω resistor between pin 33 of IC101 of the video board and GND, as in Fig. 3-1-21 (A).
- 2) Supply a 7 V DC to pin 18 of IC101 of the video board with 1 k Ω resistor, as in Fig. 3-1-21 (B).
- 3) Supply a 7V DC to pin 30 of IC101 of the video board with 1 k Ω resistor, as in Fig. 3-1-21 (C).
- 4) Use a jumper jig as shown in Fig. 3-1-21 (D) and connect jumper jig between pin 40 of IC101 and pin 14 of IC101 of the video board.
- 5) Connect the frequency counter to Emitter of Q101, and confirm that the frequency is 629.36 ± 20.00 kHz.
- 6) If necessary, adjust T101 for 629.36 ± 20.00 kHz.
- 7) Remove the jumper jigs.

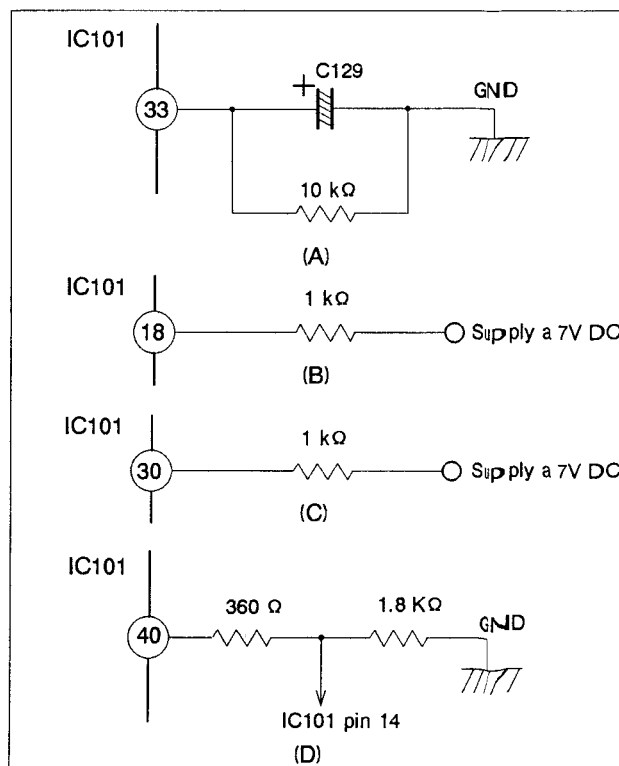


Fig. 3-1-21 LC VCO

3.1.5 AUDIO CIRCUIT

Note: Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

Important:

Item 3. and 4. .

- 1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC1 on the AUDIO UNIT BOARD has been replaced.
- 2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. Audio bias level

Signal	•AUX •No signal
Mode	•REC : EP •N-VHS
Equipment	•Millivoltmeter
Measurement point	•TP31 (BIAS) •TP32 (BIAS GND)
Adjustment part	•R129 (BIAS)
Specification	•3.2 mVrms

- 1) Connect a millivoltmeter between TP31 and TP32.
- 2) Set for REC mode without incoming signal.
- 3) Adjust R129 for 3.2 mVrms.

2. Audio REC FM level

Signal	•AUX •Color bar/no signal
Mode	•REC → PB : EP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP53 (AUDIO PB FM) [REC board]
Adjustment part	•R216 (FMA REC FM LEVEL) [REC board]
Specification	•60 ± 10 mVp-p.

- 1) Connect an oscilloscope to TP53.
- 2) Record a color bar signal without an audio signal in S-VHS EP mode.
- 3) Adjust R216 so that the lower channel level is 60 mVp-p.
- 4) Confirm that the higher channel level is 100 ± 10 mVp-p.

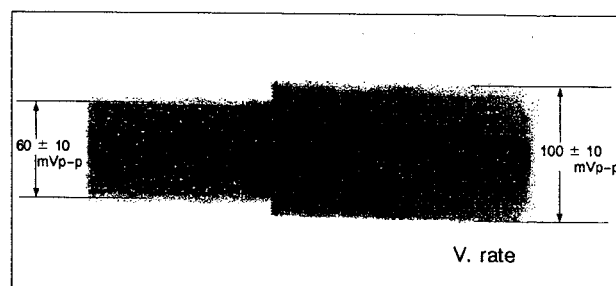


Fig. 3-1-22 Audio REC FM level

3. Carrier frequency adjustment

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC1 pin 21 (L ch) [AUDIO UNIT board] •IC1 pin 43 (R ch) [AUDIO UNIT board]
Adjustment part	•R11 (L CARRIER) [AUDIO UNIT board] •R25 (R CARRIER) [AUDIO UNIT board]
Specification	•1.3 MHz ± 5kHz: R11 •1.7 MHz ± 5kHz: R25

- 1) Connect the frequency counter to IC1 pin 21.
- 2) Confirm that the frequency is 1.3 MHz ± 5 kHz.
- 3) If necessary, replace R11 with the variable chip resistor NVP1301-153N and adjust it for 1.3 MHz ± 5kHz.
- 4) Connect the frequency counter to IC1 pin 43.
- 5) Confirm that the frequency is 1.7 MHz ± 5 kHz.
- 6) If necessary, replace R25 with the variable chip resistor NVP1301-153N and adjust it for 1.7 MHz ± 5 kHz.

4. Hi-Fi playback audio level

Signal	•Audio 1 kHz (-8 dBs)
Mode	•REC → PB
Equipment	•Audio oscillator •AC millivoltmeter
Measurement point	•Audio out (L ch) •Audio out (R ch)
Adjustment part	•R5 (L DEVIATION) [AUDIO UNIT board] •R30 (R DEVIATION) [AUDIO UNIT board]
Specification	•-8 dBs ± 1 dBs (0.9 Vp-p, 0.32 Vrms)

- 1) Connect an audio oscillator to audio input (left channel).
- 2) Record an audio 1 kHz signal and play it back.
- 3) Confirm that output level is -8 dBs (0.9 Vp-p, 0.32 Vrms).
- 4) If necessary, replace R5 with the variable chip resistor NVP1301-473N and adjust it for -8 dBs (0.9 Vp-p, 0.32 Vrms).
- 5) Connect an audio oscillator to audio input (right channel).
- 6) Record an audio 1 kHz and play it back.
- 7) Confirm that output level is -8 dBs (0.9 Vp-p, 0.32 Vrms).
- 8) If necessary, replace R30 with the variable chip resistor NVP1301-473N and adjust it for -8 dBs (0.9 Vp-p, 0.32 Vrms).

3.1.6 TIMER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. Timer clock

Signal	•AUX •No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC601 pin 64
Adjustment part	•C618 (TIMER CLOCK)
Specification	•1024.005 ± 0.001 Hz (976.5577 ± 0.0010 μsec)

- 1) Connect the frequency counter to IC601 pin 64 and GND.
- 2) Short IC601 pin 34 to IC601 pin 63.
- 3) Short the lead's capacitor C602 once in order to reset IC601.
- 4) Adjust C618 for 1024.005 ± 0.001 Hz (976.5577 ± 0.0010 μsec).
- 5) Disconnect a short wire.

3.1.7 ON SCREEN CIRCUIT

Notes: • *Unless otherwise specified, all measurement point and adjustment parts are located on the ON SCREEN BOARD.*

• *For the following adjustments, use 1 : 1 probe with input capacitance than 100 pF.*

1. Dot clock

Signal	•AUX •no signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•TP1 round
Adjustment part	•C21 (DOT CLOCK)
Specification	•7.70 ± 0.05 MHz.

- 1) Connect a frequency counter to TP1 round.
- 2) Connect a jumper wire pin 3 of IC2 to pin 13 of CN1 and pin 30 of IC2 to pin 15 of CN1.
- 3) Adjust C21 for 7.70 ± 0.05 MHz.
- 4) Remove a jumper wires.

3.1.8 TUNER CIRCUIT

Note: Unless otherwise specified, all measurement point and adjustment parts are located on the TUNER BOARD.

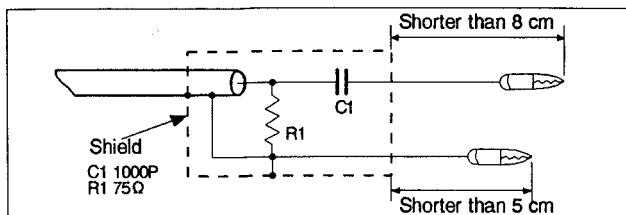


Fig. 3-1-23 Sweeper probe

1. VCO

〈Factory Method〉

Signal	•Sweep generator output
Mode	•Tuner (without antenna input Signal)
Equipment	•Oscilloscope •IF sweep signal generator (with suitable markers, PIF, SIF, etc.)
Sweeper probe	• Sweep signal supply cable (See Fig. 3-1-23)
Measurement point	•IC1 pin 17
Adjustment part	•T3 (VCO)
Specification	•45.75 MHz $\pm$ 20 kHz

- 1) Use a sweeper probe as shown in Fig.3-1-23 and connect the sweep generator output to pin 1 of SAW1.
- 2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope.
- 3) Connect the oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T3 to align the waveform with the frequency marker as shown in Fig. 3-1-24.

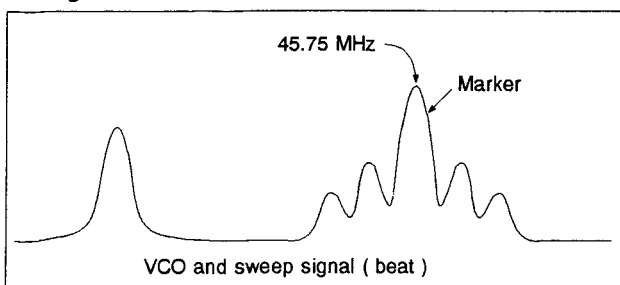


Fig. 3-1-24 VCO coil

〈Alternate method〉

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Monitor-TV
Other condition	•Same

- 1) Receive a color broadcasting on a VHF-HI channel (7 to 13).
- 2) Adjust T3 to obtain a fine picture on the monitor-TV.
- 3) Find both sides of range of pull in and adjust to the center point.
- 4) Select other channels to confirm proper channel selection.

2. RF AGC

Note: Before the following adjustment,

- 1) Connect a cable to ANT IN and terminate TV OUT with 75 ohms.
- 2) Set a TV channel signal generator as follows.

Video : 70 dB μ 75 Ω , color bar 87.5 % modulation

Audio : 62 dB μ 75 Ω , 1 kHz $\pm$ 25 kHz deviation

〈Factory Method〉

Signal	•TV broadcasting •Color bar
Mode	•Tuner
Equipment	•Oscilloscope •TV signal generator
Measurement point	•IF terminal (U/V tuner)
Adjustment part	•R19 (RF AGC)
Specification	•-7 $\pm$ 1 dB from maximum level (with minimum noise)

- 1) Connect the oscilloscope to IF terminal of U/V tuner (front end).
- 2) Adjust R19 for maximum level, then adjust R19 to reduce the IF level -7.0 dB from the maximum level.

〈Alternate method〉

Note: Adjust R19 (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.

- 1) Adjust R19 to minimize noise or streaks on the TV screen.
- 2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

3. AFC

〈Factory Method〉

Signal	•TV broadcasting •Color bar
Mode	•Tuner •AFC : OFF
Equipment	•Oscilloscope •TV signal generator
Measurement point	•CN3 pin 8 (S CURVE OUT)
Adjustment part	•T2 (AFC)
Specification	• 2.2 ± 0.2 V DC

- 1) Receive a color bar signal.
- 2) Connect an oscilloscope to pin 8 of CN3 and set the oscilloscope to DC mode.
- 3) Adjust T2 to set the lower edge of the ripple waveform to 2.2 V DC.

《Alternate method》

- 1) Receive a color broadcast on a VHF-HI channel (7 to 13).
- 2) Connect an oscilloscope to pin 8 of CN3 and set the oscilloscope to DC mode.
- 3) Adjust T2 to set the lower edge of the ripple waveform to 2.2 V DC.

4. Sound DET.

〈Factory Method〉

Signal	•TV broadcasting
Mode	•Tuner •AFC : OFF
Equipment	•Distortion meter •TV signal generator
Measurement point	•IC1 pin 1 (FM DET)
Adjustment part	•T1 (FM DET)
Specification	•Minimum distortion (less than 0.5 %)

- 1) Use an adjustment circuit, and connect a distortion meter as shown in Fig. 3-1-24.
- 3) Adjust T1 for minimum distortion (less than 0.5 %).

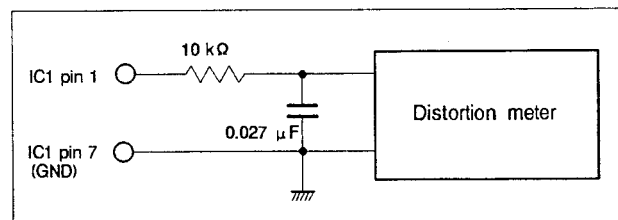


Fig. 3-1-25 Sound DET. (Adjustment circuit)

《Alternate method》

- 1) Receive a color broadcast on a VHF-HI channel (7 to 13).
- 2) Connect an oscilloscope to pin 1 of IC1.
- 3) Adjust T1 for maximum level at audio sound.

3.1.9 DEMODULATOR CIRCUIT

Note: Unless otherwise specified, all measurement points and adjustment parts are located on the TUNER BOARD.

1. Stereo VCO adjustment

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC201 pin 23
Adjustment part	•R218 (STEREO VCO)
Specification	• 15.73 ± 0.05 kHz

- 1) Connect the 20 k Ω resistor between pin 10 of IC201 and pin 13 of IC201.
- 2) Connect the frequency counter to pin 23 of IC201.
- 3) Adjust R218 for 15.73 ± 0.05 kHz.

2. Low pass filter adjustment

Signal	•No signal
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC201 pin 14
Adjustment part	•R219 (FILTER)
Specification	•Minimize

- 1) Connect a oscilloscope to pin 14 of IC201.
- 2) Adjust R219 for minimum waveform.

3. Stereo separation adjustment

Signal	•Sweep generator output (96 dB μ , 1 kHz)
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC201 pin 29
Adjustment part	•R216 (SEPARATION-1) •R217 (SEPARATION-2)
Specification	•Minimize

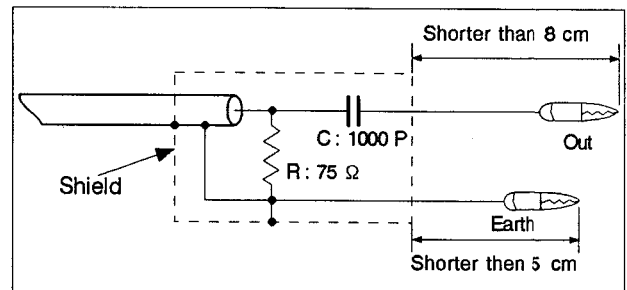


Fig. 3-1-26 Sweeper probe

- 1) Use a sweeper probe as shown in Fig. 3-1-26.
- 2) Supply 300 Hz L-only modulated IF signal to IF terminal of U/V tuner (front end).
- 3) Connect an oscilloscope to pin 29 of IC201.
- 4) Adjust R216 for minimum output level.
- 5) Supply 5 kHz L-only modulated IF signal to IF terminal of U/V tuner (front end).
- 6) Connect an oscilloscope to pin 29 of IC201.
- 7) Adjust R217 for minimum output level.

SECTION 4

CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

Safety precautions
The Components identified by the symbol  are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

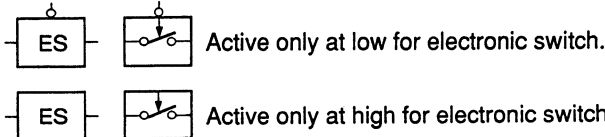
1. Schematic diagram values

Unless otherwise specified.

- 1) All resistance values are in ohms. 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: K Ω (1000 Ω), M: M Ω (1000K Ω)
- 2) All capacitance values are in μ F, (P: PF).
- 3) All inductance values in μ H, (m: mH).
- 4) All diodes are 1SS133 or MA165, (refer to parts list).

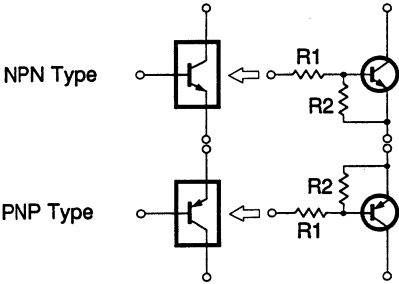
2. Indications

AUX : Active only at high.
AUX : Active only at low.

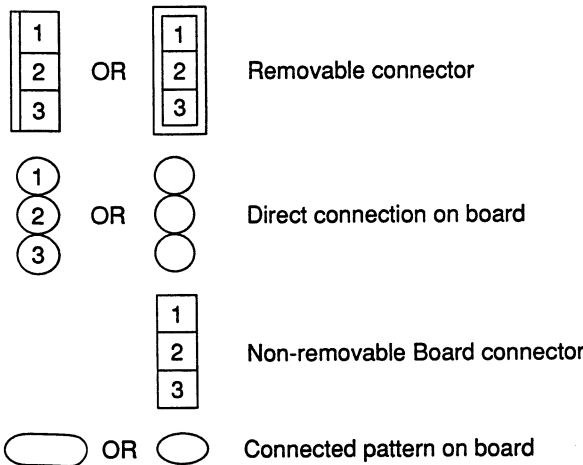


Digital transistor :

The digital transistor includes built in resistors. It features small size and high reliability.

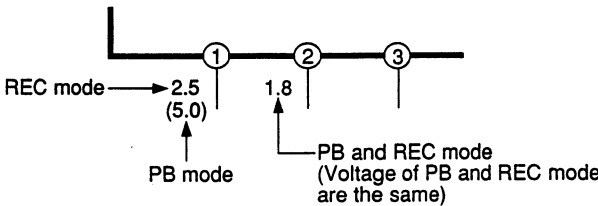


3. Interpreting Connector indications



4. Voltage measurement

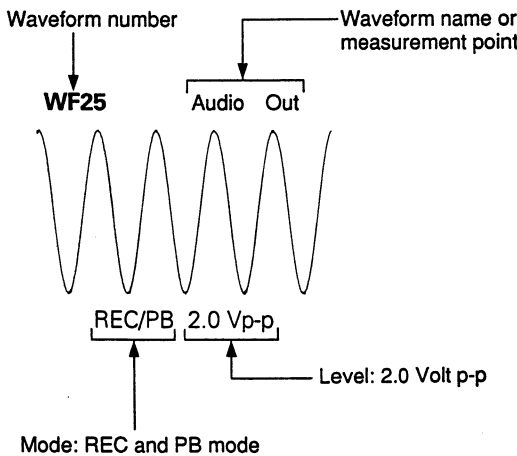
- 1) Voltage chart
REC : Color bar signal in SP mode, normal VHS mode.
PB : Alignment tape, color bar SP mode, normal VHS mode.
— : Unmeasurable or unnecessary to measure.
- 2) Audio section
REC : 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode.
PB : REC then playback it.
- 3) Movie Camera Section
Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the E-E mode.
- 4) Schematic diagram
Voltage Indications for REC and PB mode on Schematic are as shown below.



5. Waveform measurement

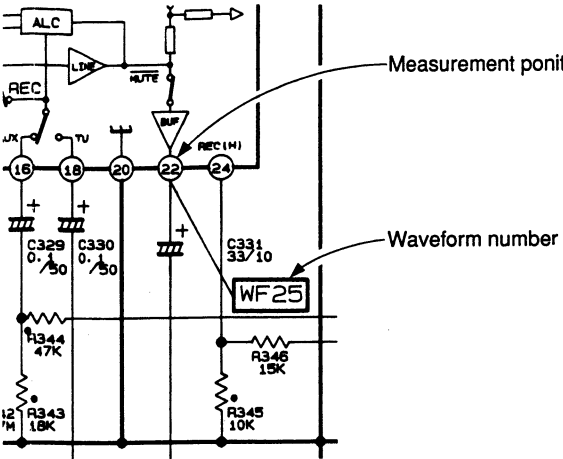
- 1) Waveform chart
REC : Color bar signal in SP mode, normal VHS mode.
PB : Alignment tape, color bar SP mode, normal VHS mode.
- 2) Audio Section
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode.
PB : REC then playback it.
- 3) Movie Camera Section
Measured as the grey scale or color bar pattern which lighted up brightly is shot in the E-E mode.

Example:



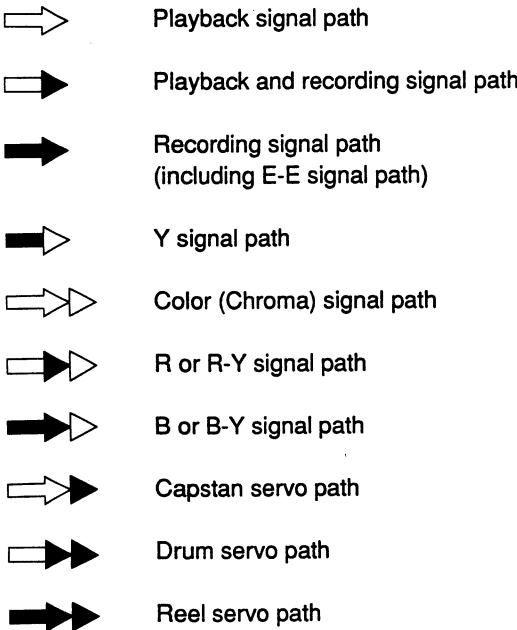
4) Schematic diagram

Waveform indications on schematic are as shown below.



6. Signal path Symbols

The arrows indicate the signal path as follows.



CIRCUIT BOARD NOTES

1. Color indications

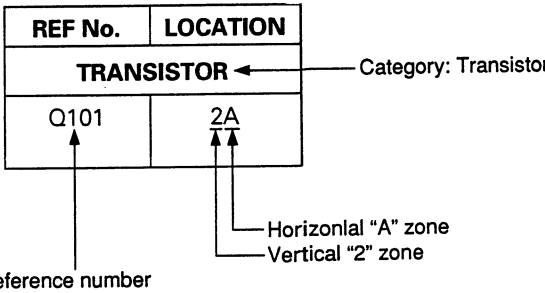
- 1) Foil side :
Foil side patterns are indicated at gray shading.
- 2) Component side :
Component side patterns are indicated at RED shading.

Notes:

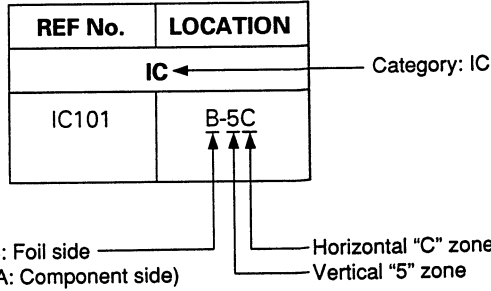
Foil side (B side) ;
Parts on the foil side seen from foil face (pattern face) are indicated.
Component side (A side) ;
Parts on the component side seen from component face (parts face) are indicated.

2. Location of SMC indications

- 1) Single pattern :



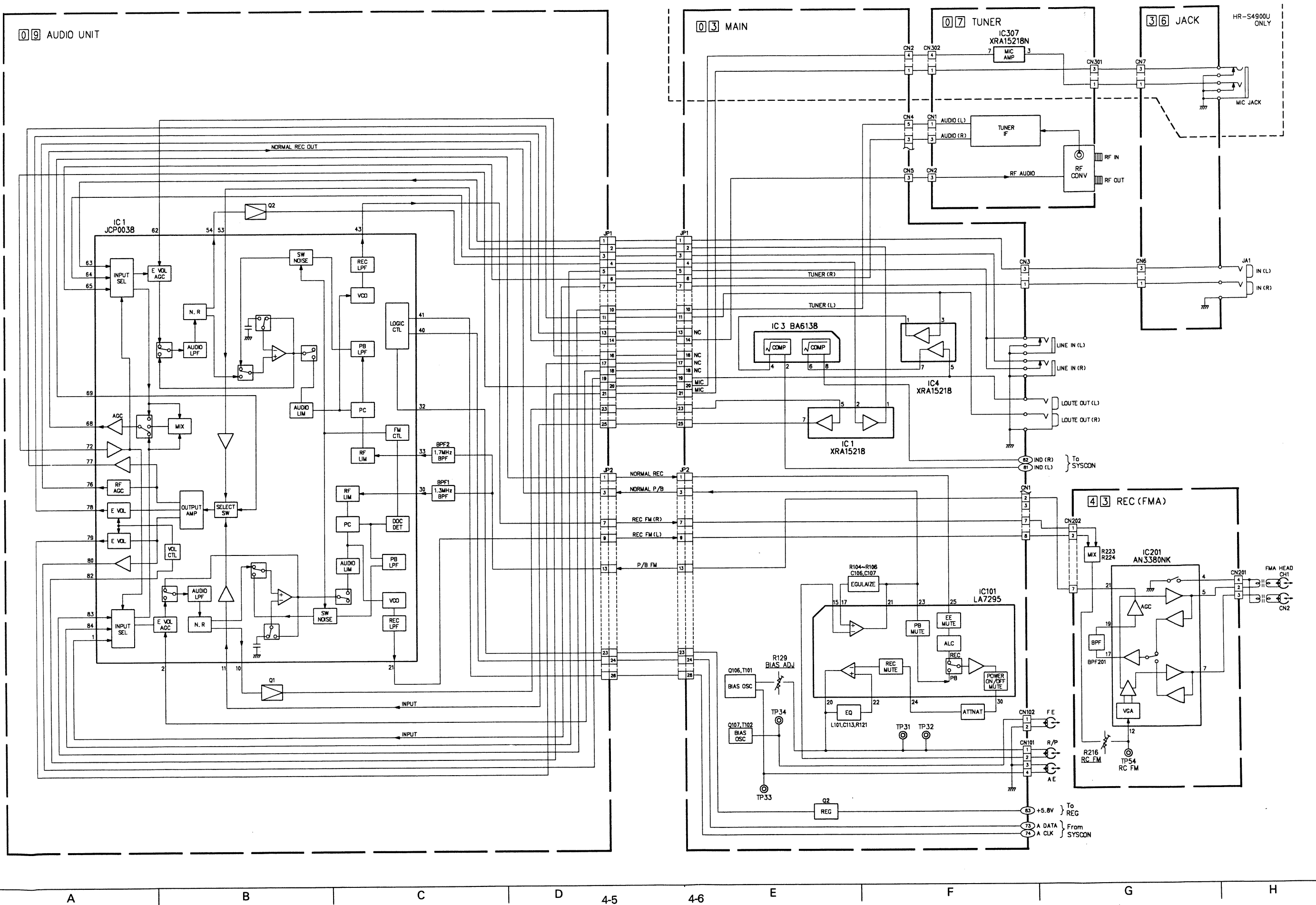
- 2) Double pattern :



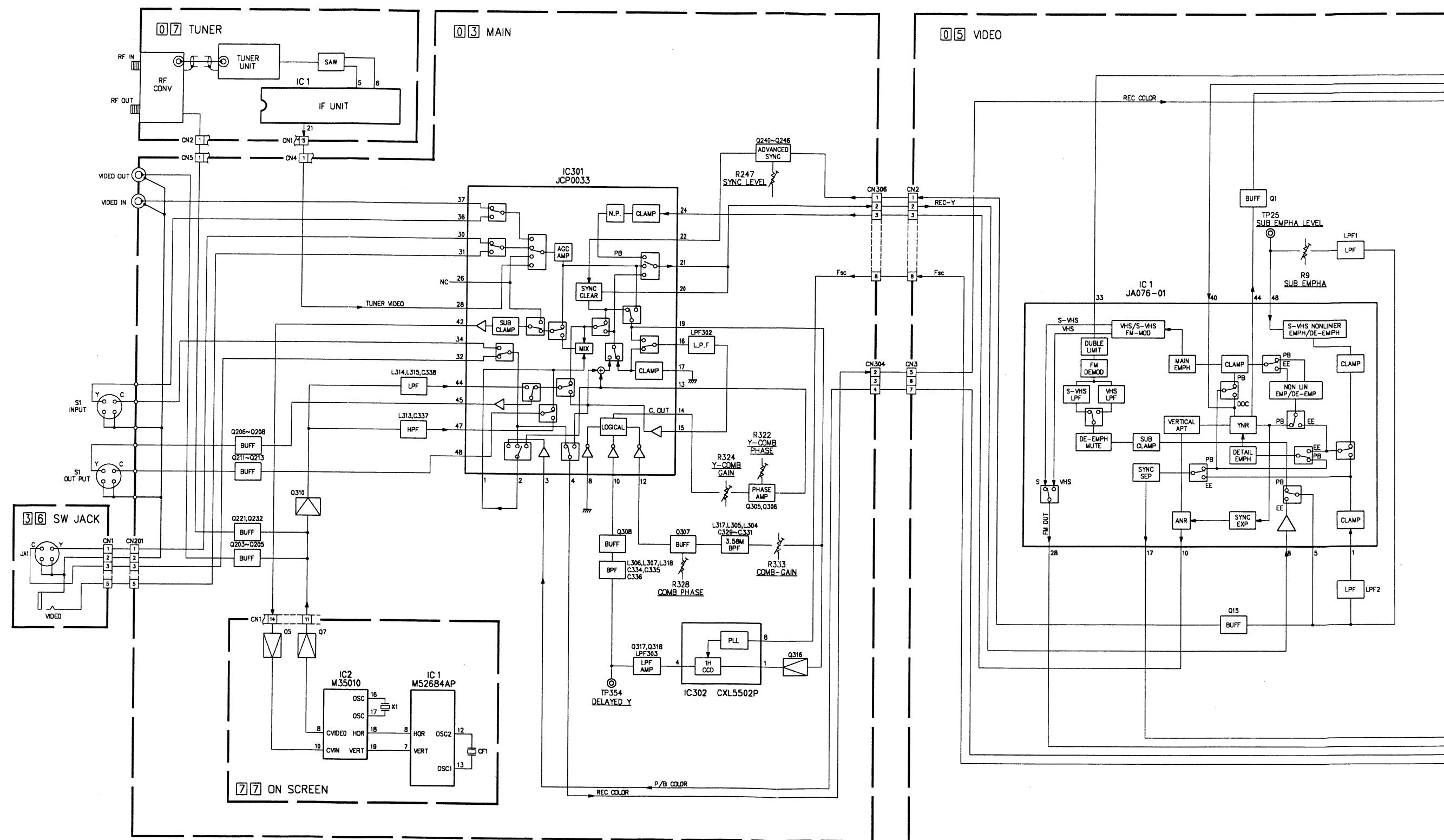
Notes:

- 1) For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION No. 82054C (May 1991).
- 2) For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.

4.2 AUDIO BLOCK DIAGRAM



4.3 VIDEO BLOCK DIAGRAM -1)

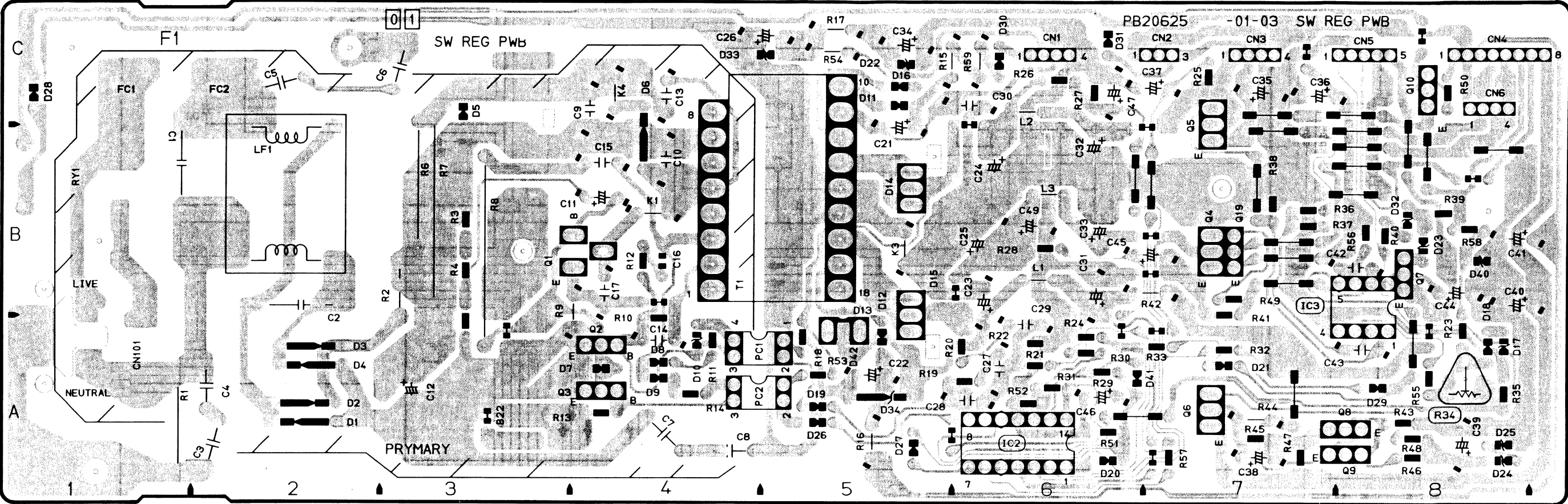


The diagram illustrates the internal circuitry of a VCR, organized into four main sections: J (Main Processor), K (Main Control), L (REC - Record), and M (PRE/REC - Pre-record). Each section contains detailed electronic schematics for various functions.

- Section J (Main Processor):** This section is the central hub, containing IC101 (JCP0040) and IC202 (TL8825). It handles the main video and audio processing, including burst de-emphasis, main conversion, and color processing. It also includes a phase-locked loop (PLL) and various buffers and amplifiers.
- Section K (Main Control):** This section contains the main control logic, including a microcontroller (U1, U DRUM) and various control lines for the other sections. It also includes a power control section (Q301-Q303) and an oscillator (OSC).
- Section L (REC - Record):** This section is responsible for recording video and audio onto the tape. It includes a record equalizer (REC EQ), a record phase-locked loop (REC PLL), and various buffers and amplifiers. It also includes a phase-locked loop (PLL) and various buffers and amplifiers.
- Section M (PRE/REC - Pre-record):** This section is responsible for pre-recording video and audio onto the tape. It includes a pre-record equalizer (PRE EQ), a pre-record phase-locked loop (PRE PLL), and various buffers and amplifiers. It also includes a phase-locked loop (PLL) and various buffers and amplifiers.

The diagram is labeled with component values, pin numbers, and signal names like REC FM, REC COLOR, and P/B FM. It also includes a legend for the different sections and a list of components and their values.

4.6 SWITCHING REGULATOR CIRCUIT BOARD



MAIN COMPONENT LOCATION GUIDE
<SW REG BOARD>

REF No.	LOCATION
IC	
IC2	6A
IC3	8B
TRANSISTOR	
Q1	4B
Q2	4A
Q3	4A
Q4	7B
Q5	7C
Q7	8B
DIODE	
D1	2A
D2	2A
D3	2A
D4	2A
D5	3C
D6	4C
D7	4A
D8	4A
D9	4A
D10	4A
D11	5C
D12	5B
D14	5B
D15	5B
D16	5C
D17	8A
D18	8A
D19	5A
D20	6A
D21	7A
D22	5C
D23	8B
D26	5A
D27	5A
D30	6C
D32	8B
D34	5A
D40	8B
D41	6A
D42	5A

REF No.	LOCATION
CONNECTOR	
CN1	6C
CN2	7C
CN3	7C
CN4	8C
CN5	8C
CN101	1A
ADJUSTMENT	
R34	8A

6

5

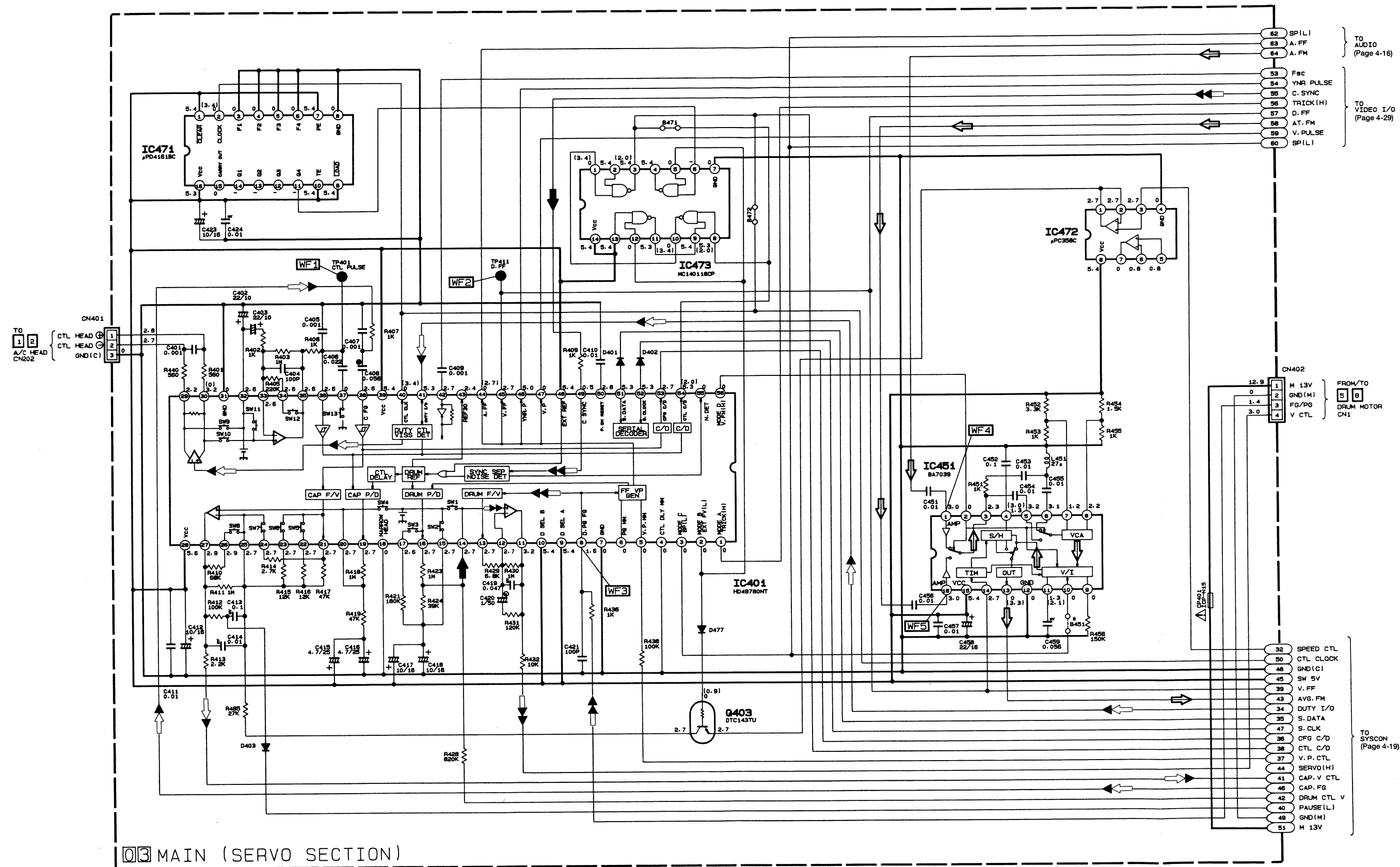


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2

1

4.8 SERVO SCHEMATIC DIAGRAM



6

4.9 SYSTEM CONTROL SCHEMATIC DIAGRAM

5

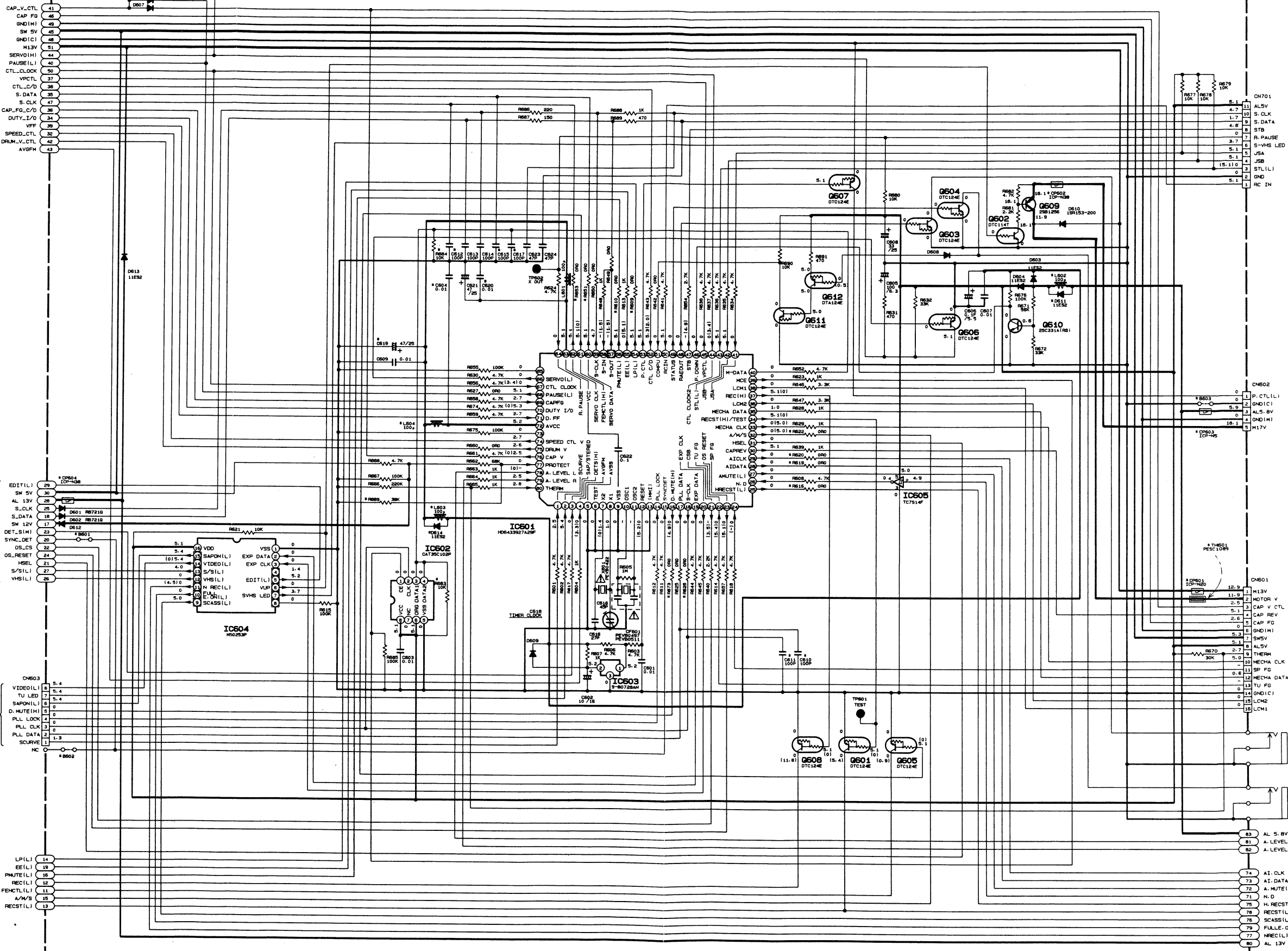
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3

2

1

03 MAIN (SYSCON)



S15967

* MARKED PARTS

R609	BUS WIRE
R610	BUS WIRE
R616	BUS WIRE
R619	BUS WIRE
R620	BUS WIRE
R622	BUS WIRE
R626	BUS WIRE
R651	BUS WIRE
R653	BUS WIRE
R659	OPEN
R673	BUS WIRE
R683	OPEN
R684	USED
D611	OPEN
D614	OPEN
C604	OPEN
C610	OPEN
C611	OPEN
C612	OPEN
C615	OPEN
C617	OPEN
C619	OPEN
C620	OPEN
L602	BUS WIRE
L603	BUS WIRE
L604	BUS WIRE
CP601	BUS WIRE
CP602	BUS WIRE
CP603	BUS WIRE
CP604	BUS WIRE
TR601	BUS WIRE
B601	USED
B602	OPEN
B603	USED

TO VIDEO I/O
(Page 4-29)

TO TUNER
CN3
(Page 4-35)

TO VIDEO I/O
(Page 4-29)

TO SERVO
(Page 4-18)

TO DISPLAY
CN1
(Page 4-48)

TO REG
CN5
(Page 4-12)

TO TERM
CN1
(Page 4-26)

JA9
R.A. EDIT

JA10
AV COMP

TO AUDIO
(Page 4-15, 16)

A

B

C

4-19

D

4-20

E

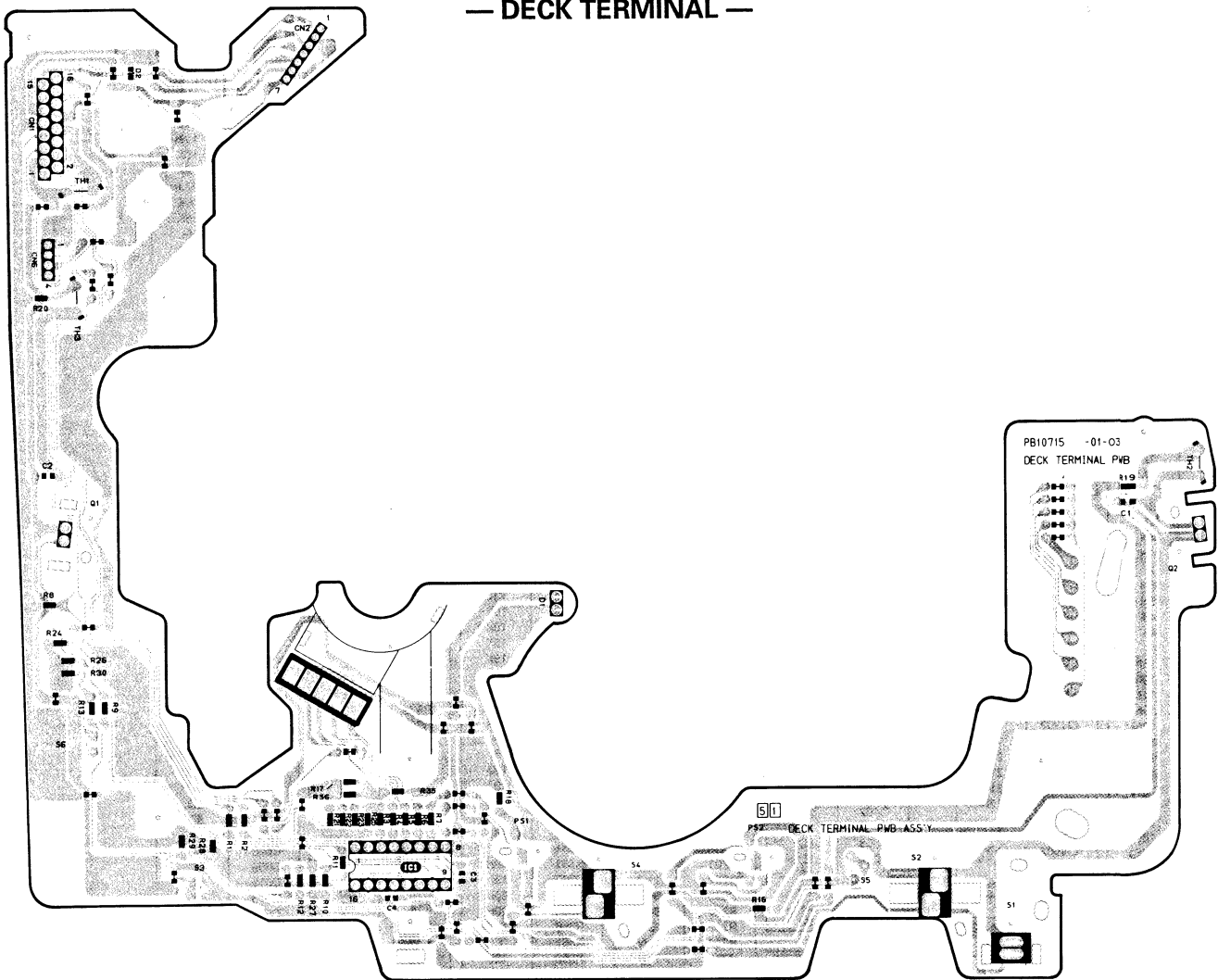
F

G

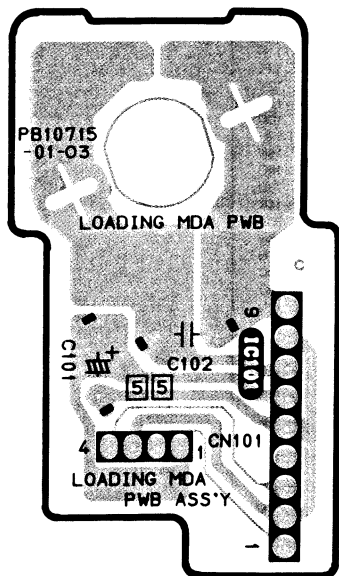
H

4.10 DECK TERMINAL, LOADING MDA AND A/C HEAD CIRCUIT BOARDS

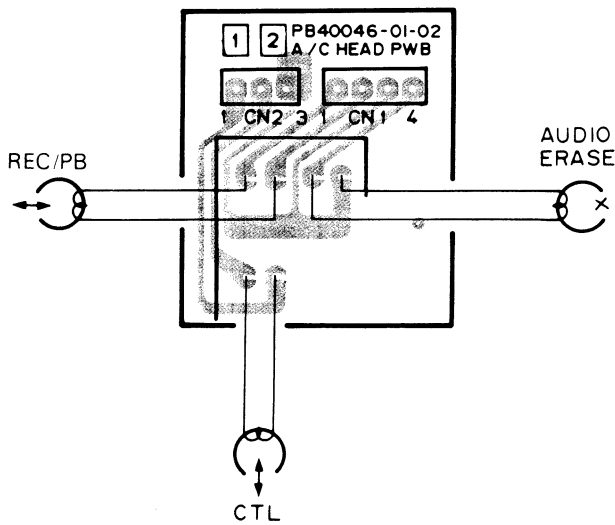
— DECK TERMINAL —



— LOADING MDA —



— A/C HEAD —



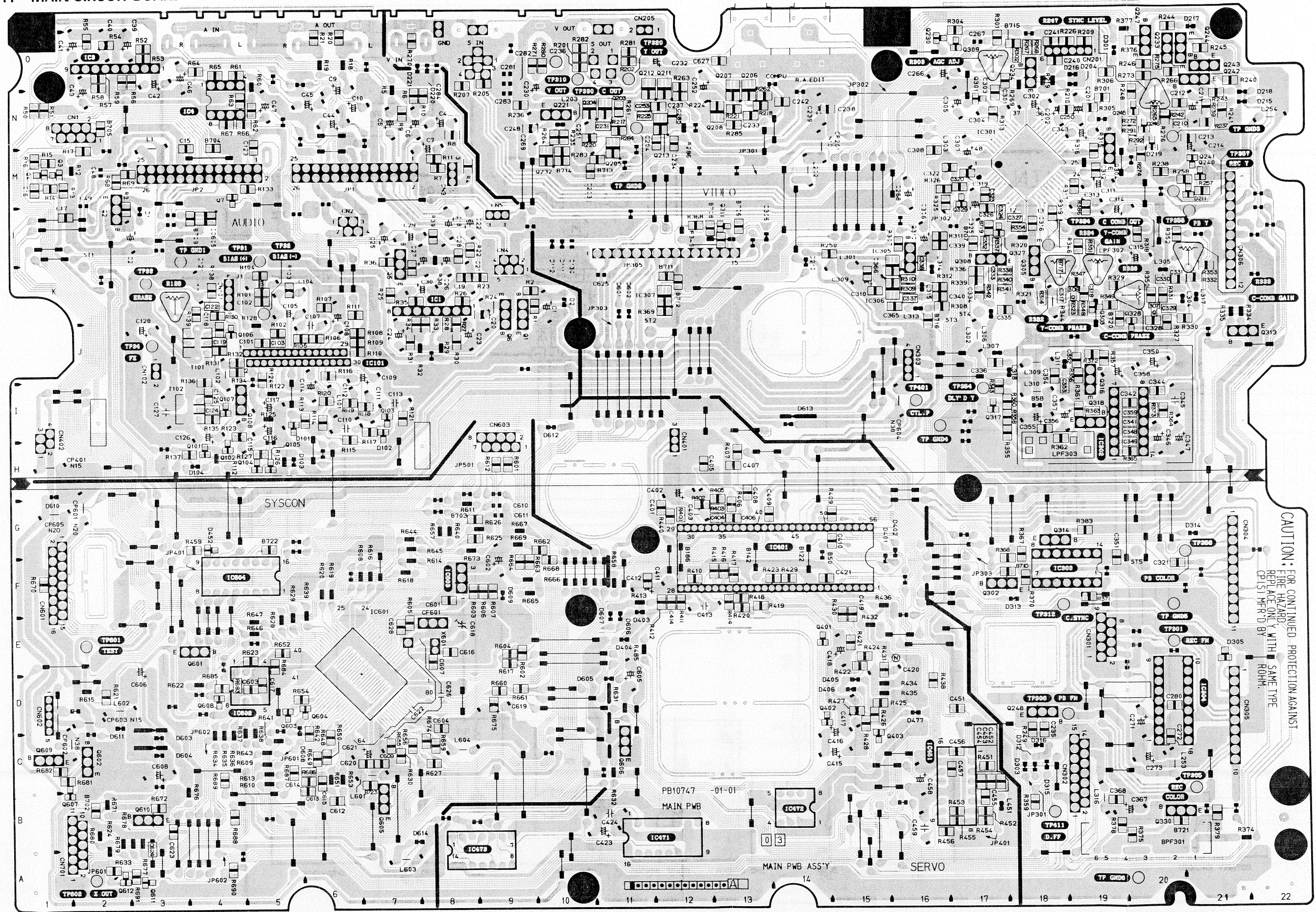
MAIN COMPONENT PARTS
LOCATION GUIDE
<MAIN BOARD>

REF. No.	LOCATION	REF. No.	LOCATION
IC		DIODE	
IC1	8K	D219	20M
IC3	2O	D220	8O
IC4	4N	D221	8O
IC101	6J	D301	19O
IC301	18M	D303	18C
IC302	10I	D305	21E
IC303	18F	D306	13L
IC401	14G	D313	18F
IC451	17C	D314	21G
IC471	12B	D316	18C
IC472	14B	D401	15F
IC473	19A	D402	16G
IC601	6E	D403	11F
IC602	5D	D477	16D
IC603	8F	D601	11K
IC604	4F	D602	11K
IC605	4L	D603	3C
		D604	3C
		D605	11D
		D606	11E
		D607	11E
		D608	5C
		D609	9F
		D610	1H
		D612	10I
		D613	14I
REF. No.	LOCATION	REF. No.	LOCATION
TRANSISTOR		CONNECTOR	
Q1	9K	CN1	2N
Q2	2L	CN2	6L
Q3	1M	CN3	8M
Q4	1M	CN4	9L
Q5	7K	CN5	9L
Q6	9K	CN101	4K
Q7	4M	CN102	3J
Q101	4H	CN201	19O
Q102	4H	CN205	11O
Q103	7I	CN301	19E
Q104	5H	CN302	19C
Q105	5H	CN303	16J
Q106	4J	CN304	21G
Q107	4I	CN305	21D
Q108	4I	CN306	21L
Q203	11N	CN401	12H
Q204	10N	CN402	1I
Q205	11M	CN601	1F
Q206	13N	CN602	1D
Q207	13N	CN603	9I
Q208	13N	CN701	1A
Q211	12O		
Q212	11O		
Q203	12N		
Q221	10N		
Q230	16O		
Q232	10M		
Q233	20O		
Q240	21M		
Q241	21M		
Q242	21O		
Q243	21O		
Q244	20O		
Q245	20N		
Q246	20N		
Q248	18D		
Q301	17N		
Q302	17F		
Q303	19K		
Q304	19M		
Q305	18K		
Q306	19K		
Q307	20K		
Q308	17L		
Q309	17O		
Q310	16L		
Q313	21J		
Q314	18G		
Q316	19I		
Q317	17I		
Q318	19I		
Q329	17M		
Q330	20B		
Q403	15C		
Q601	4E		
Q602	2C		
Q603	5D		
Q604	6D		
Q605	7B		
Q606	11C		
Q607	1B		
Q608	4D		
Q609	1C		
Q610	3B		
Q611	3A		
Q612	2A		
REF. No.	LOCATION	REF. No.	LOCATION
DIODE		TEST POINT	
D2	10K	TP31	5L
D101	5I	TP32	5K
D102	7I	TP33	3K
D103	5H	TP34	3J
D104	4H	TP301	20E
D204	19O	TP305	21C
D210	14L	TP306	19D
D211	21M	TP310	10O
D215	20N	TP312	18F
D217	21O	TP320	11O
D218	21N	TP324	18L
		TP330	10O
		TP354	17I
		TP355	21L
		TP356	21G
		TP357	20M
		TP401	16I
		TP411	18B
		TP601	2E
		TP602	2A
		TPGND1	3L
		TPGND2	11N
		TPGND3	20N
		TPGND4	16I
		TPGND5	20F
		TPGND6	20A
REF. No.	LOCATION	REF. No.	LOCATION
CP			
CP201	15N		
CP401	2H		
CP601	2G		
CP603	2D		
CP605	1G		

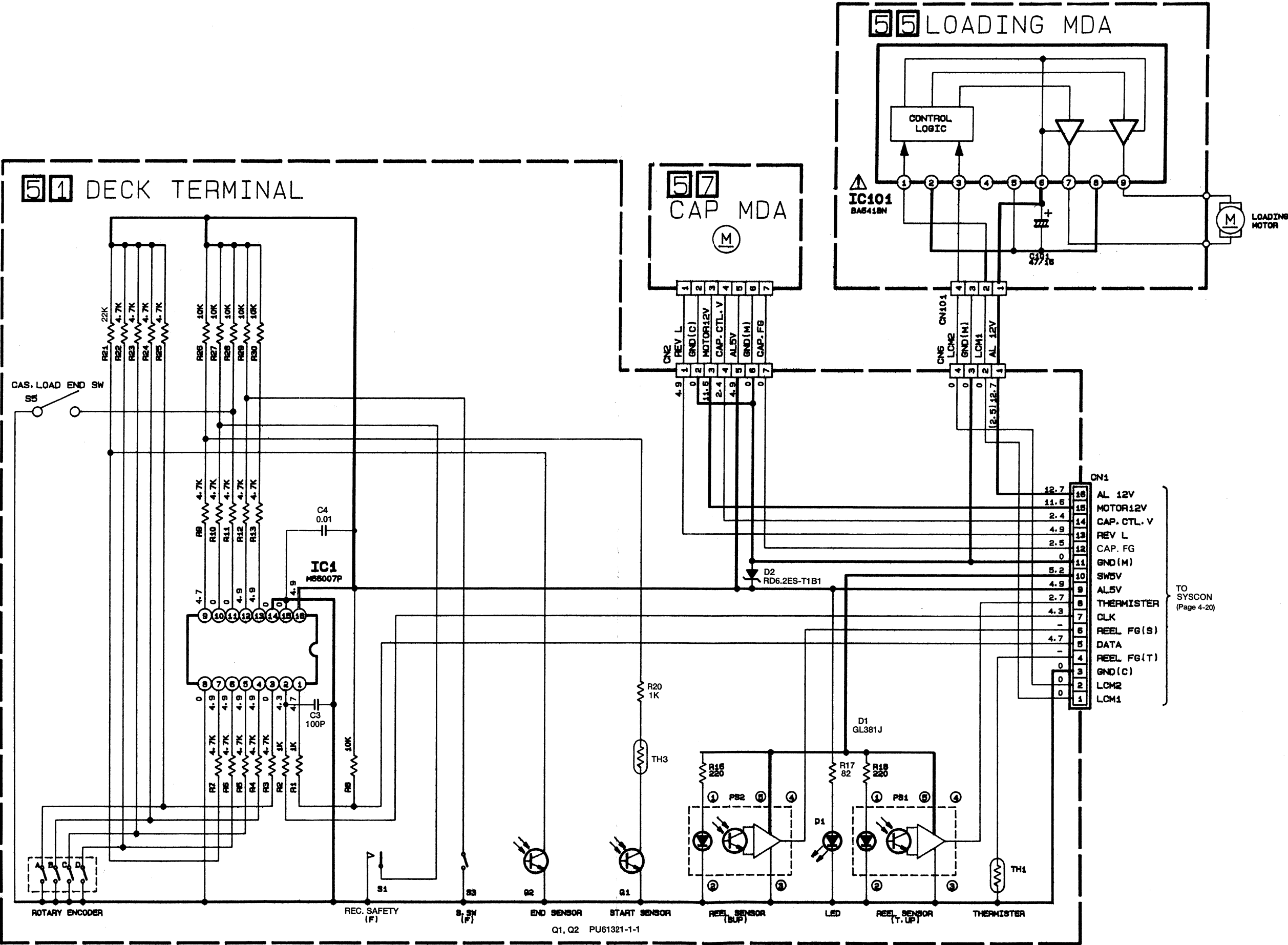
LEADLESS COMPONENT PARTS
LOCATION GUIDE
<MAIN BOARD>

REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION
IC		RESISTOR		RESISTOR		RESISTOR		CAPACITOR	
IC301	18M	R53	3O	R304	17O	R459	4G	C330	20K
IC305	16K	R54	2O	R305	19N	R601	9H	C331	20K
IC306	16K	R55	2O	R306	19O	R602	9E	C332	17L
IC307	12K	R56	3O	R307	16L	R603	8F	C333	17K
IC601	6E	R57	2O	R308	16K	R604	9E	C334	17K
IC605	4L	R58	2O	R309	16K	R605	7E	C335	18K
		R59	2O	R310	16K	R606	9F	C336	17J
		R61	4O	R311	16L	R607	9F	C337	16K
		R62	5N	R312	16K	R612	9H	C338	16K
		R63	5N	R313	17N	R617	9E	C339	16L
		R64	4O	R314	18K	R621	2D	C340	16K
		R65	4O	R315	19M	R623	5E	C341	20I
		R66	4N	R317	19M	R625	8G	C342	20I
		R67	4N	R318	20L	R627	8C	C344	20I
		R68	2M	R319	18L	R630	7C	C348	20I
		R69	3M	R323	19K	R633	2A	C349	20H
		R101	5K	R325	16M	R642	6C	C351	19F
		R102	5J	R326	16M	R648	6C	C352	19J
		R103	5K	R327	18L	R649	6C	C353	18I
		R104	5K	R328	20J	R650	6C	C354	18J
		R105	5J	R329	19K	R652	5E	C356	18I
		R106	6J	R330	21K	R654	5D	C359	20I
		R107	6K	R331	20K	R655	7C	C365	16K
		R108	7J	R332	21K	R656	7C	C366	15K
		R109	7J	R336	17K	R659	8C	C368	19B
		R110	7J	R337	17L	R660	9D	C401	12G
		R111	6K	R338	18K	R661	9D	C404	13G
		R113	6I	R339	17K	R662	10G	C405	12H
		R114	6I	R340	18K	R663	9F	C406	13G
		R115	6H	R341	18K	R664	9F	C407	13H
		R116	6J	R342	18K	R668	10F	C408	13H
		R117	7I	R343	17I	R670	1F	C409	13G
		R118	7I	R345	13L	R672	3B	C410	15G
		R119	6I	R346	19L	R674	8C	C411	11F
		R120	6I	R347	19K	R675	9D	C414	12F
		R121	7I	R348	19K	R681	1C	C419	15F
		R123	4I	R349	19K	R682	1C	C421	14F
		R124	5J	R350	20K	R683	4D	C451	17D
		R127	5H	R351	19L	R684	5E	C452	17C
		R130	4K	R352	20L	R685	4D	C453	17C
		R131	4J	R353	21K	R686	6C	C454	17C
		R132	4J	R354	18L	R687	5C	C455	17B
		R133	5M	R355	18I	R688	4B	C456	17C
		R134	4J	R356	19J	R689	4C	C457	17C
		R135	4I	R357	19J	R690	4A	C601	8F
		R136	4J	R358	18I	R691	3A	C603	5D
		R137	4H	R359	18B			C604	8D
		R138	4K	R360	18I			C607	8E
		R139	4K	R361	19I			C608	5D
		R201	10O	R362	18H			C609	7C
		R202	11O	R363	19I			C612	6B
		R205	9O	R364	20I			C613	6C
		R207	8O	R365	20H			C614	6C
		R209	19O	R366	17F			C615	6C
		R217	11N	R367	18G			C616	8E
		R218	13N	R368	12L			C620	7C
		R220	10N	R369	12K			C623	3B
		R221	13N	R370	18F			C624	3B
		R224	12N	R371	19F			C627	13O
		R225	11N	R372	19J			C628	7E
		R226	19O	R373	20I				
		R235	10N	R375	20B				
		R236	9N	R376	20O				
		R237	21N	R378	19B				
		R238	20M	R379	21B				
		R239	21N	R383	19G				
		R240	21O	R386	19L				
		R241	21N	R401	12G				
		R242	20N	R402	12G				
		R243	21N	R403	13G				
		R244	20O	R405	13G				
		R245	21O	R406	13G				
		R246	20O	R407	13H				
		R248	20N	R409	15G				
		R249	18C	R410	12F				
		R250	15L	R411	12F				
		R257	21M	R412	12F				
		R258	21M	R414	13F				
		R261	11N	R415	13F				
		R262	13N	R416	13F				
		R263	12O	R417	13F				
		R264	10N	R418	13F				
		R265	20N	R419	13F				
		R266	20O	R420	13F				
		R267	18O	R421	15E				
		R268	18O	R422	15E				
		R270	7O	R423	14F				
		R271	9O	R424	15E				
		R272	20N	R425	15D				
		R273	20O	R426	15D				
		R274	20M	R427	15D				
		R275	20O	R428	15D				
		R276	20N	R429	13F				
		R280	10O	R430	15F				
		R281	11O	R431	15E				
		R282	10O	R438	16D				
		R283	10M	R440	12G				
		R284	11N	R451	17C				
		R285	13N	R452	17B				
		R291	20N	R453	17B				
		R292	20N	R454	17B				
		R301	17O	R455	17B				
		R302	18O	R456	16B				

4.11 MAIN CIRCUIT BOARD

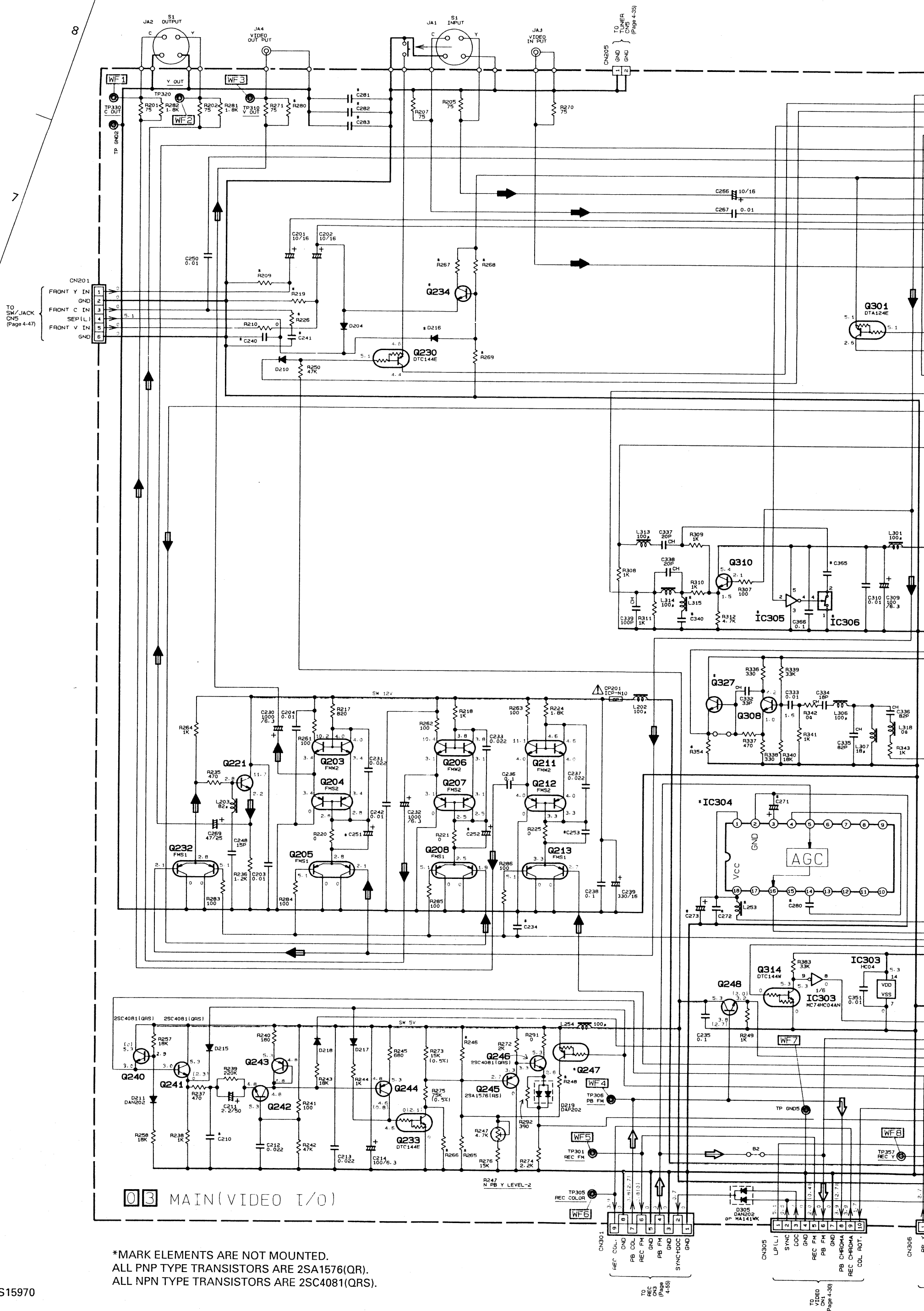


4.12 DECK TERMINAL, LOADING MDA AND CAPSTAN MDA SCHEMATIC DIAGRAMS



TO SYSCON
(Page 4-20)

4.13 VIDEO IN/OUT SCHEMATIC DIAGRAM





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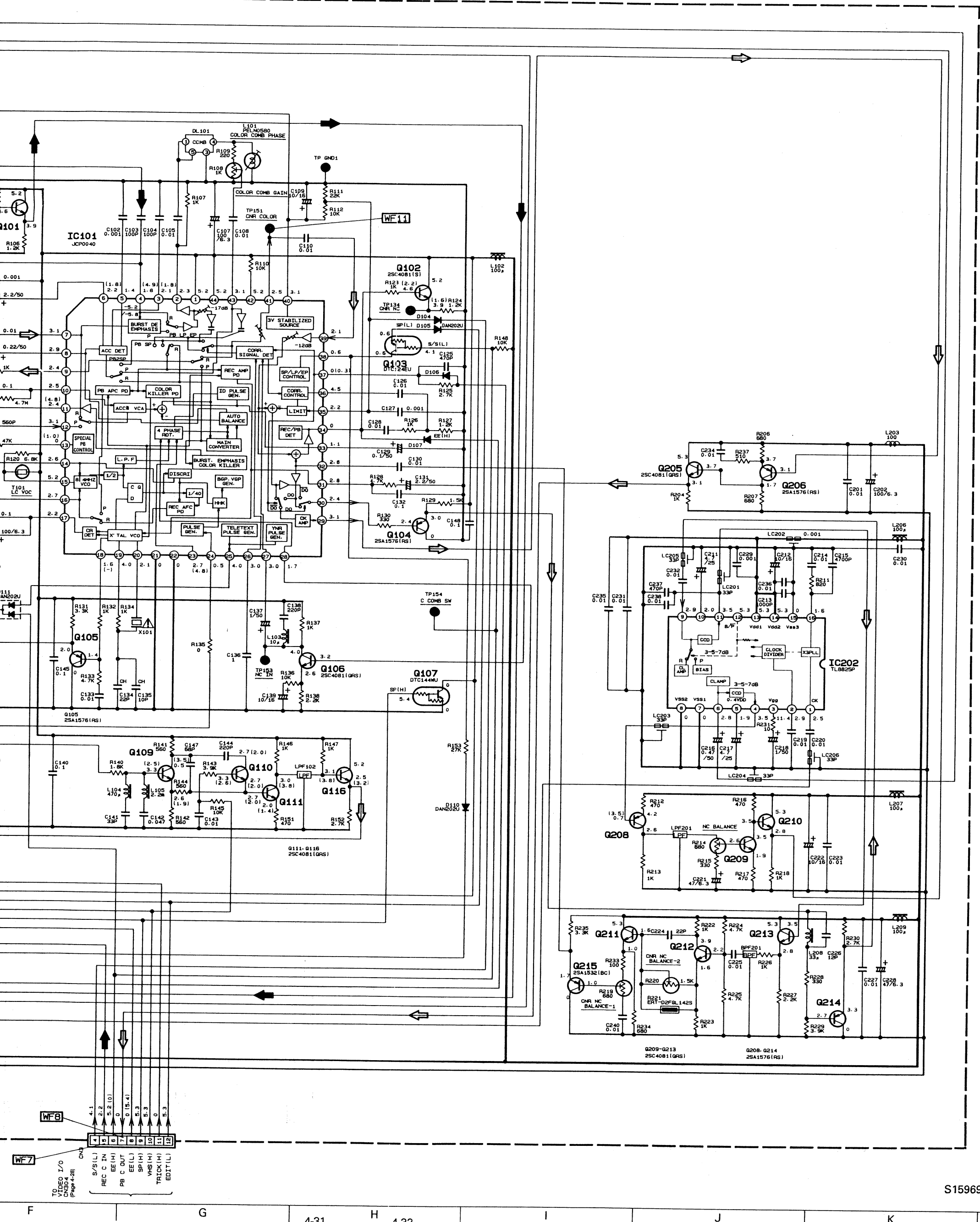
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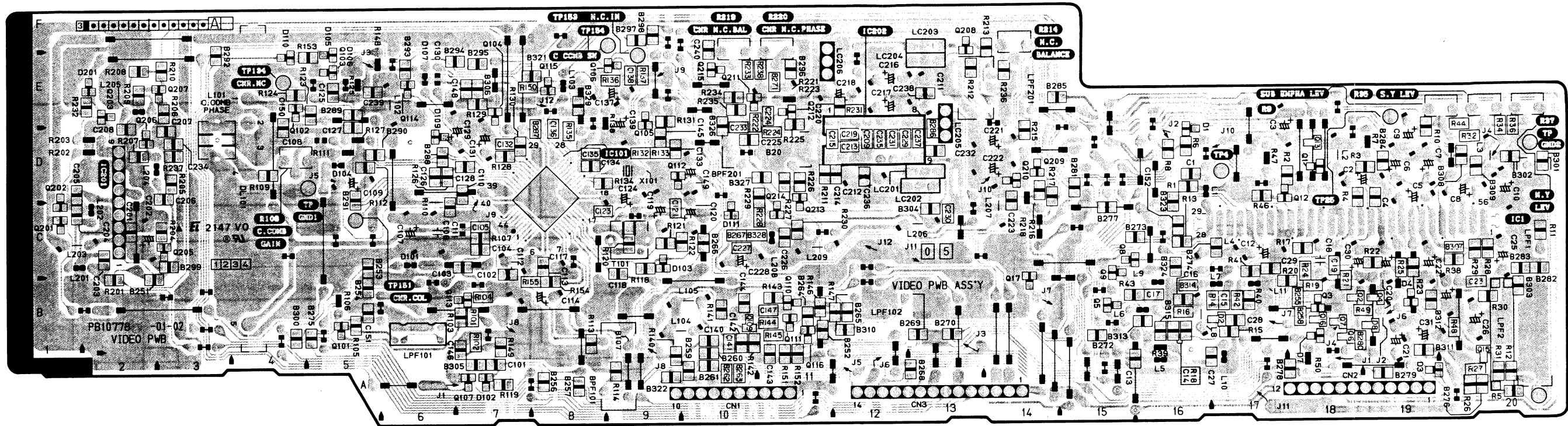
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TO VIDEO I/O
CN304



4.15 VIDEO CIRCUIT BOARD



MAIN COMPONENT PARTS LOCATION GUIDE

<VIDEO BOARD>

REF. No.	LOCATION
IC	
IC1	20C
IC101	8D
IC201	2D
IC202	12D
TRANSISTOR	
Q1	18D
Q2	18B
Q3	18B
Q3	18B
Q4	19B
Q5	15B
Q7	18B
Q8	15C
Q12	17C
Q13	18D
Q15	20A
Q16	18B
Q17	14C
Q101	5B
Q102	4E
Q103	5E
Q104	7E
Q105	9D
Q106	9E
Q107	7A
Q109	10B
Q110	11B
Q111	11B
Q112	9D
Q113	7B
Q114	6E
Q115	8E
Q116	11B
Q201	1C
Q202	1D
Q203	2E
Q205	3C
Q206	2D

REF. No.	LOCATION
Q207	3E
Q208	13E
Q209	14D
Q210	14D
Q211	10E
Q212	11E
Q213	11C
Q214	11C
Q215	10E
DIODE	
D1	16D
D2	17B
D3	19A
D4	19B
D7	18B
D8	19B
D101	6C
D102	7A
D103	9C
D104	5D
D105	5E
D106	5E
D107	6E
D109	6D
D111	10C
D201	2E
CONNECTOR	
CN1	10A
CN2	18A
CN3	13A
ADJUSTMENT	
R9	18E
R35	19E
R37	20D
R108	4D
R214	14F
R219	10E

LEADLESS COMPONENT PARTS LOCATION GUIDE

<VIDEO BOARD>

REF. No.	LOCATION
IC	
IC101	8D

REF. No.	LOCATION
TRANSISTOR	
Q201	1C
Q202	1D
Q203	2E
Q205	3C
Q206	2D
Q207	3E
Q208	13E
Q209	14D
Q210	14D
Q211	10E
Q212	11E
Q213	11C
Q214	11C
Q215	10E

REF. No.	LOCATION
TRANSISTOR	
Q1	18D
Q2	18B
Q3	18B
Q4	19B
Q5	15B
Q6	18B
Q7	18B
Q8	15C
Q9	15C
Q12	17C
Q13	18D
Q15	20A
Q16	19B
Q17	14C
Q101	5B
Q102	4E
Q103	5E
Q104	7E
Q105	9D
Q106	9E
Q107	7A
Q109	10B
Q110	11B
Q111	11B
Q112	9D
Q113	7B
Q114	6E
Q115	8E
Q116	11B

REF. No.	LOCATION
DIODE	
D1	16D
D2	17B
D3	19A
D4	19B
D7	18B
D8	19B
D102	7A
D103	9C
D105	5E
D109	6D
D110	4E
D111	10C
D201	2E

REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION
RESISTOR		RESISTOR		RESISTOR		CAPACITOR		CAPACITOR	
R43	15B	R142	10B	R232	2E	C127	5D	C226	11C
R44	20D	R143	11B	R233	10E	C128	7D	C227	10C
R46	17C	R144	11B	R234	10E	C132	7D	C229	12D
R48	20B	R145	11B	R235	10E	C133	9D	C230	13C
R49	19B	R146	11B	R236	14E	C134	8D	C231	12D
R101	7B	R147	12B	R237	3D	C135	8D	C232	13D
R102	7B	R149	7B	R238	11E	C136	8D	C233	10D
R103	7B	R150	7E			C138	9E	C234	3D
R104	7B	R151	11A			C140	10B	C235	12D
R105	5B	R152	11A			C141	10B	C236	12D
R107	7C	R153	5E			C142	10B	C237	13D
R109	4D	R154	8B			C143	11A	C238	13E
R110	6C	R155	8B			C144	10B	C239	5E
R112	5D	R201	2B			C145	9D	C240	10E
R113	8B	R204	3C			C146	7B		
R114	9A	R205	3D			C147	11B		
R118	9C	R206	3E			C148	7E		
R119	7A	R207	2D			C150	4D		
R120	9C	R208	2E			C151	5B		
R121	9C	R209	2E			C152	16C		
R122	10C	R210	3E			C201	2C		
R123	5E	R211	11C			C203	2C		
R124	4E	R212	13E			C204	1C		
R126	6D	R213	14E			C205	1D		
R128	7D	R215	14D			C206	3D		
R129	7E	R216	14D			C207	3D		
R130	7D	R217	14C			C208	2D		
R131	9D	R222	10D			C209	12D		
R132	9D	R224	11D			C213	12D		
R133	9D	R225	11D			C214	12D		
R134	8D	R226	11D			C215	12D		
R135	8D	R227	11D			C219	12D		
R136	9E	R228	11C			C220	12E		
R137	9E	R229	11C			C223	14C		
R140	9A	R230	11C			C224	11E		
R141	10B	R231	12E			C225	10D		

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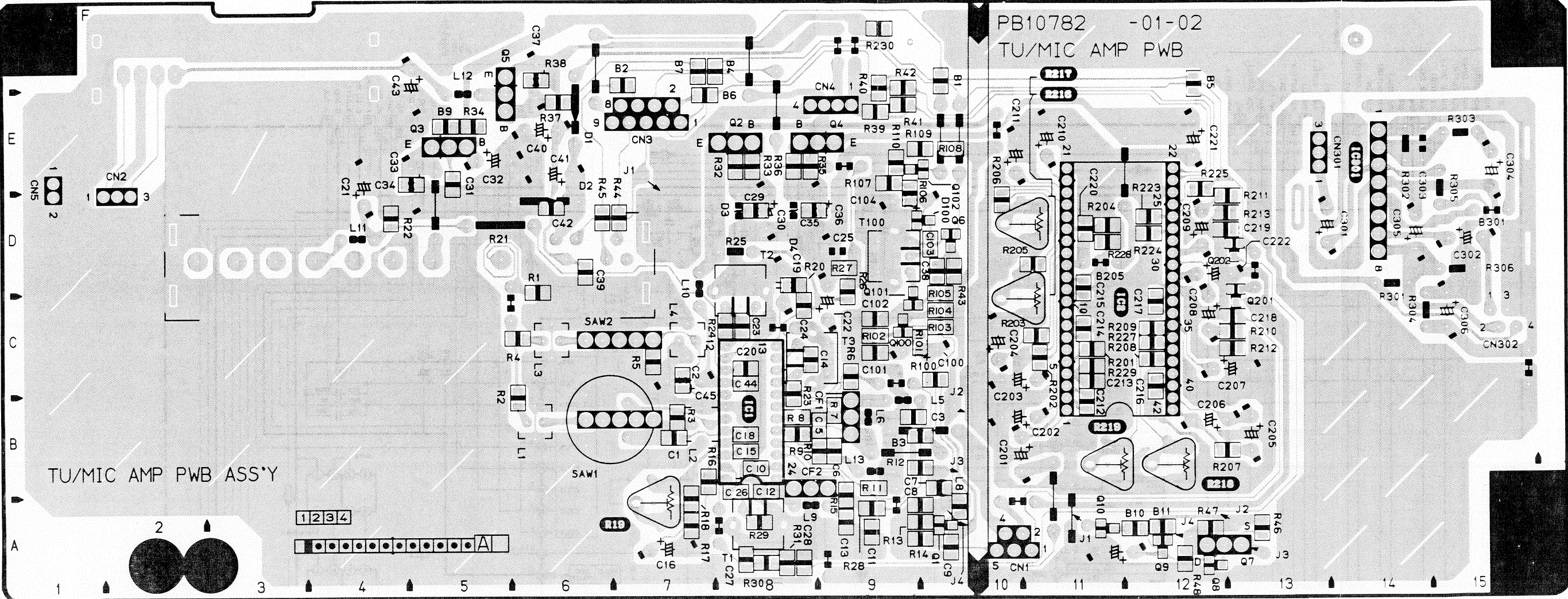
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4.17 TUNER/MIC AMP CIRCUIT BOARD



MAIN COMPONENT LOCATION GUIDE
<TUNER/MIC AMP BOARD>

REF No.	LOCATION
IC	
IC1	8B
IC2	11C
IC301	14E
REF No. LOCATION- TRANSISTOR	
Q2	8E
Q3	5E
Q4	9E
Q5	5F
Q6	10D
Q201	13D
Q202	13D
REF No. LOCATION DIODE	
D2	6D
D3	8D
D4	8D
REF No. LOCATION CONNECTOR	
CN1	10A
CN2	2E
CN3	7E
CN4	9E
CN5	1E
CN301	13E
CN302	15C
REF No. LOCATION ADJUSTMENT	
R19	7A
R216	11C
R217	11D
R218	12B
R219	11B

LEADLESS COMPONENT PARTS LOCATION GUIDE
<TUNER/MIC AMP BOARD>

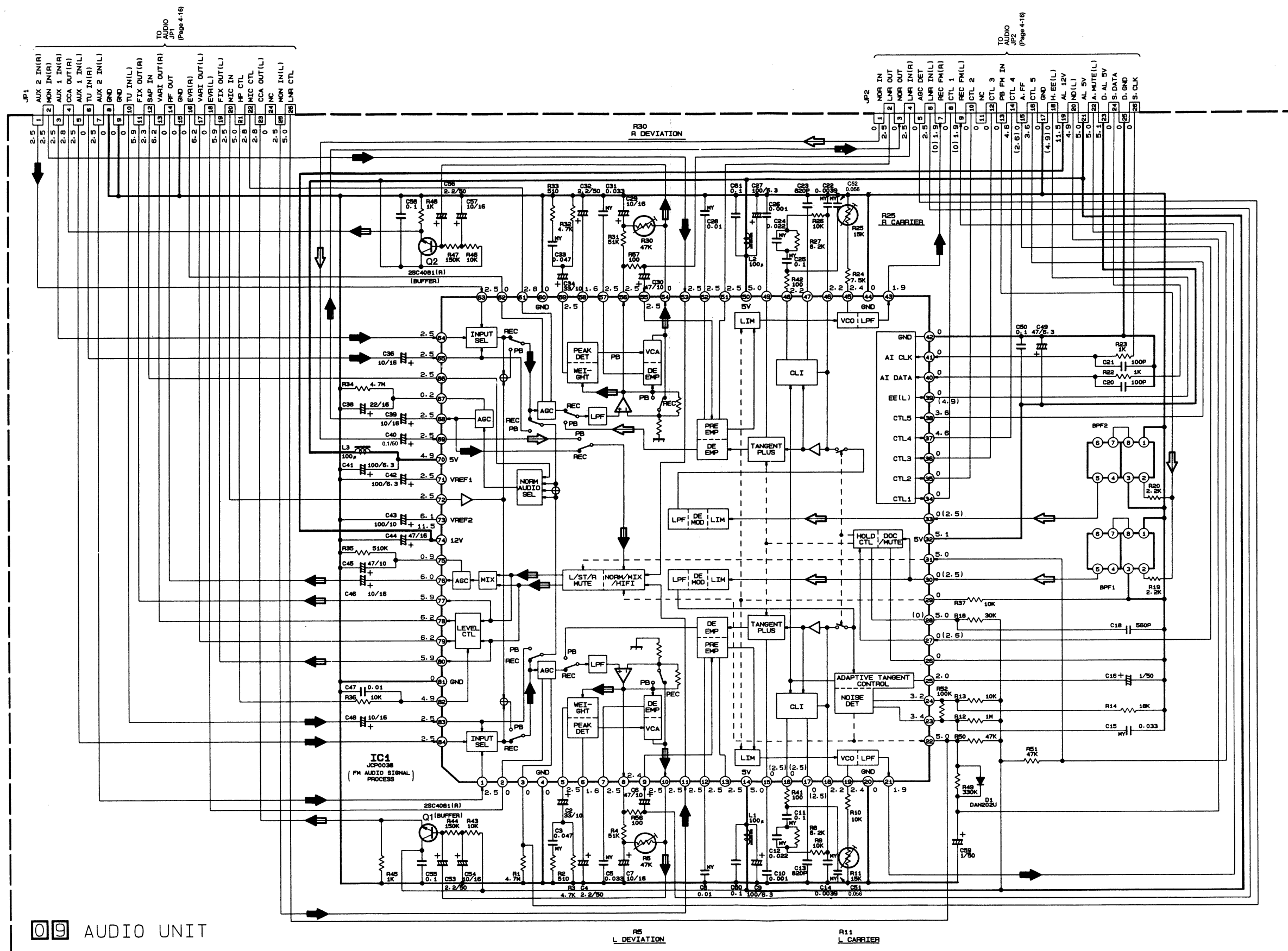
REF No.	LOCATION
TRANSISTOR	
Q1	10A
Q6	10D
Q8	12A
Q9	12A
Q10	11A
Q100	9C
Q101	9D
Q102	10E
Q201	13D
Q202	13D
REF No. LOCATION DIODE	
D100	10D
REF No. LOCATION RESISTOR	
R1	6D
R2	6C
R3	7B
R4	6C
R5	7C
R6	9C
R7	9B
R8	8B
R9	8B
R10	9B
R11	9B
R12	9B
R13	10A
R14	10A
R15	9B
R16	7B
R17	7A
R18	7B
R20	8D
R22	4D
R23	8C
R24	8C
R26	9D
R27	9D
R28	9A

REF No.	LOCATION
RESISTOR	
R29	8A
R30	8A
R31	8A
R32	8A
R33	8E
R34	8E
R35	8E
R36	8E
R37	9E
R38	9F
R39	9E
R40	9F
R41	9E
R42	9F
R43	10D
R44	7D
R45	6D
R46	13A
R47	12A
R48	12A
R100	10C
R101	9C
R102	9C
R103	10C
R104	10C
R105	10D
R106	9E
R107	9E
R108	10E
R109	9E
R110	9E
R201	11C
R202	11C
R203	11C
R204	11D
R205	11D
R206	10D
R207	12B
R208	12C
R209	12C

REF No.	LOCATION
RESISTOR	
R210	13C
R211	13E
R212	13C
R213	13D
R223	12D
R224	12D
R225	12E
R227	12C
R228	11D
R229	11C
R230	9F

REF No.	LOCATION
CAPACITOR	
C1	7B
C2	7C
C3	9B
C6	9B
C7	10B
C8	10A
C9	10A
C10	8B
C11	9A
C12	8B
C13	9A
C14	8C
C15	8B
C18	8B
C20	8C
C23	8C
C24	8C
C26	8B
C27	8A
C28	8A
C29	8D
C31	5E
C34	5E
C35	8D
C38	10D
C39	6D
C42	6D
C44	8C
C101	9C
C102	9C
C103	10D
C212	11B
C213	11C
C214	11C
C215	11D
C216	12C
C217	12C
C218	13C
C219	13D
C220	11D

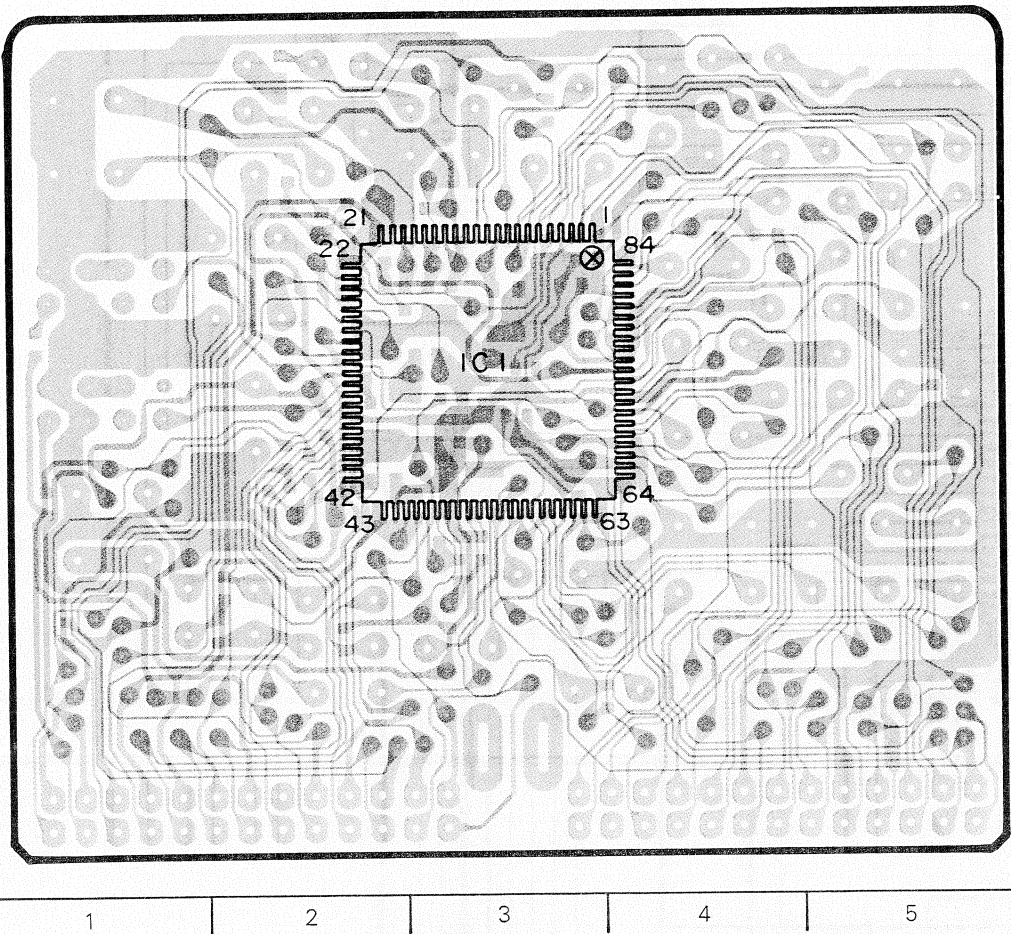
4.18 AUDIO UNIT SCHEMATIC DIAGRAM



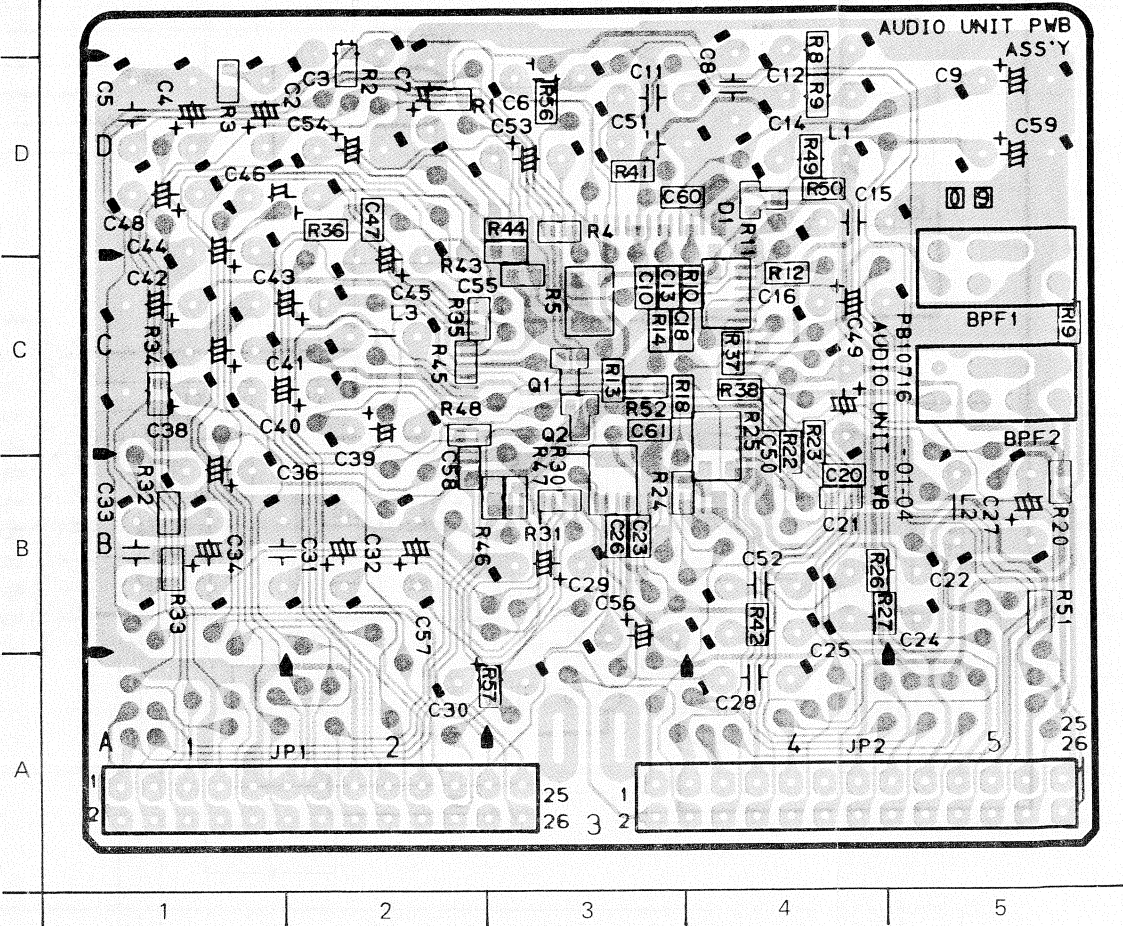
09 AUDIO UNIT

4.19 AUDIO UNIT CIRCUIT BOARD

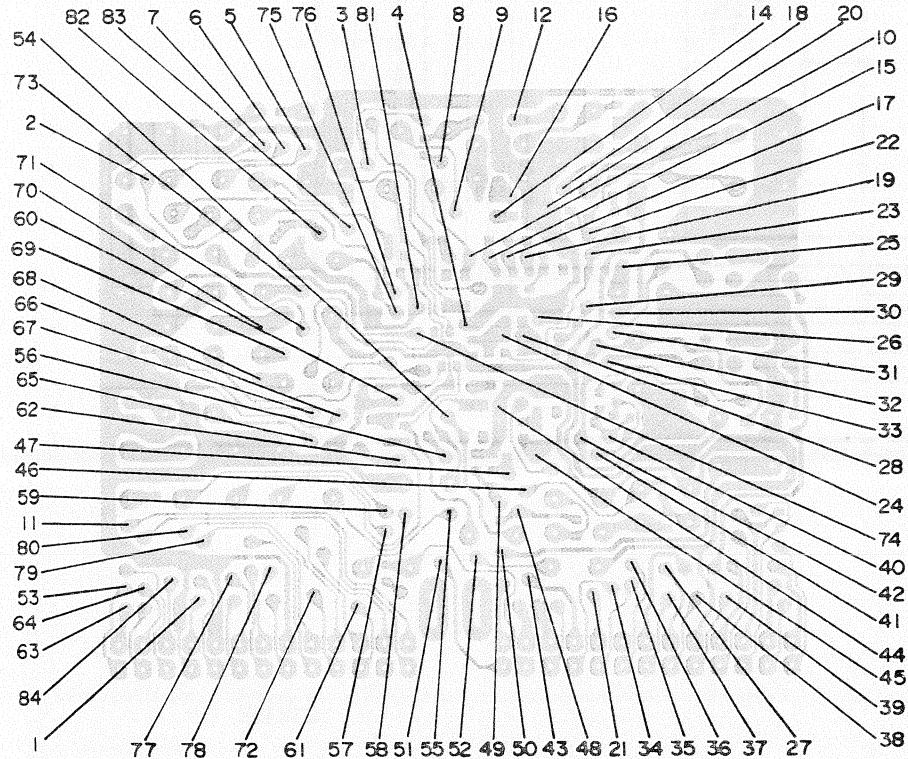
— COMPONENT SIDE —
(A)



— FOIL SIDE —
(B)



— IC PIN NUMBER LOCATION (FOIL SIDE) —



LEADLESS COMPONENT PARTS LOCATION GUIDE
<AUDIO UNIT BOARD>

REF. No.	LOCATION
TRANSISTOR	
Q1	B-3C
Q2	B-3C

REF. No.	LOCATION
DIODE	
D1	B-4D

REF. No.	LOCATION
RESISTOR	
R1	B-2D
R2	B-2D
R3	B-1D
R4	B-3D
R5	B-3C
R8	B-4D
R9	B-4D
R10	B-4C
R11	B-4C
R12	B-4C
R13	B-3C
R14	B-3C
R18	B-3C
R19	B-5C
R20	B-5B

REF. No.	LOCATION
RESISTOR	
R22	B-4B
R23	B-4B
R24	B-3B
R25	B-4C
R26	B-4B
R27	B-4B
R30	B-3B
R31	B-3B
R32	B-1B
R33	B-1B
R34	B-1C
R35	B-2C
R36	B-2D
R37	B-4C
R38	B-4C

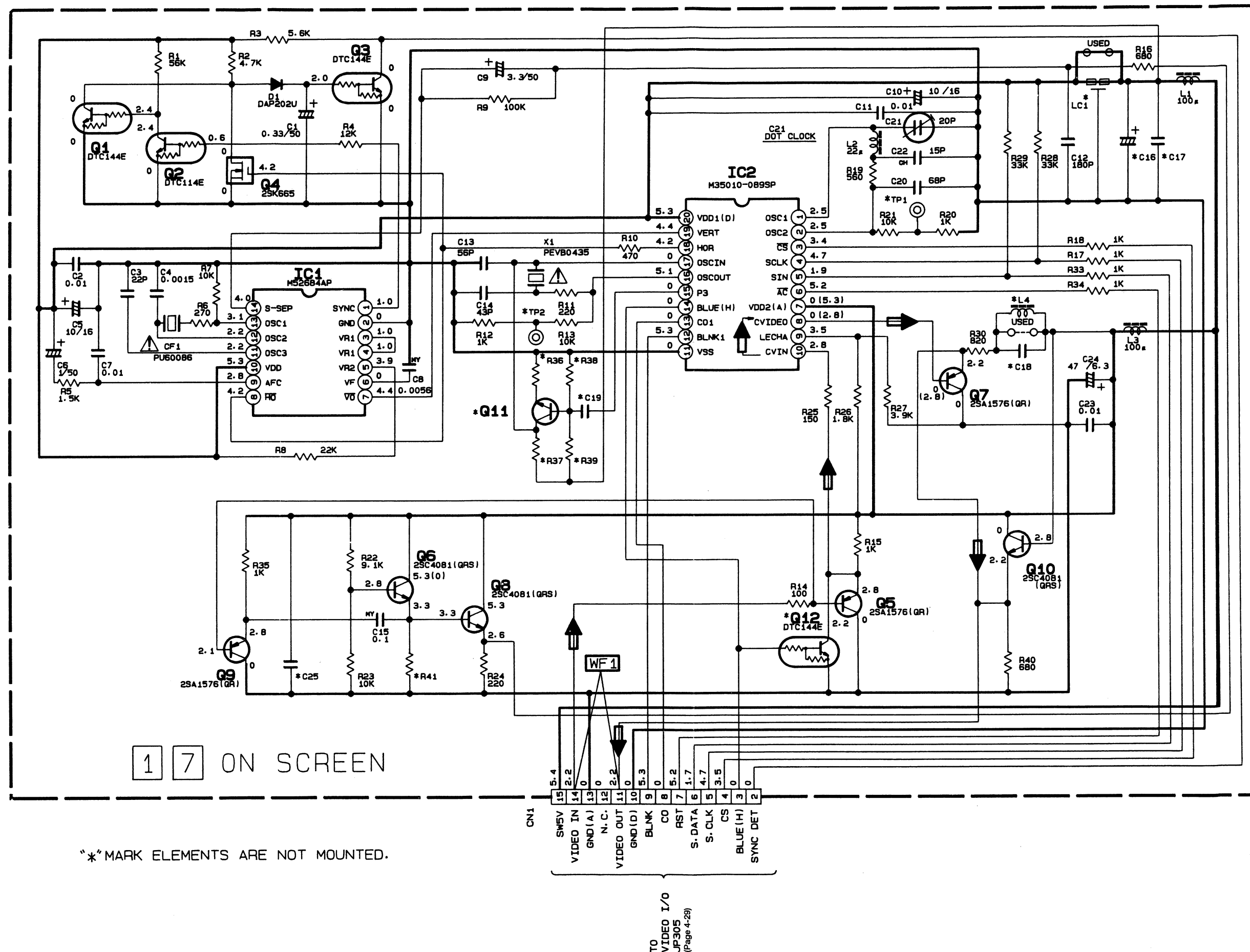
REF. No.	LOCATION
RESISTOR	
R41	B-3D
R42	B-4B
R43	B-2C
R44	B-3D
R45	B-2C
R46	B-3B
R47	B-3B
R48	B-2C
R49	B-4D
R50	B-4D
R51	B-5B
R52	B-3C
R56	B-3D
R57	B-3A

REF. No.	LOCATION
CAPACITOR	
C10	B-3C
C13	B-3C
C18	B-3C
C20	B-4B
C21	B-4B
C23	B-3B
C26	B-3B
C47	B-2D
C50	B-4C
C58	B-2B
C60	B-3D
C61	B-3C

MAIN COMPONENT PARTS
LOCATION GUIDE
<AUDIO UNIT BOARD>

REF. No.	LOCATION
IC	
IC1	A-3C
TRANSISTOR	
Q1	B-3C
Q2	B-3C
DIODE	
D1	B-4D
CONNECTOR	
JP1	B-2A
JP2	B-4A
ADJUSTMENT	
R5	B-3C
R11	B-4C
R25	B-3B
R30	B-3B

4.20 ON SCREEN SCHEMATIC DIAGRAM



* * MARK ELEMENTS ARE NOT MOUNTED.

TO VIDEO I/O
JP305
(Page 4-29)

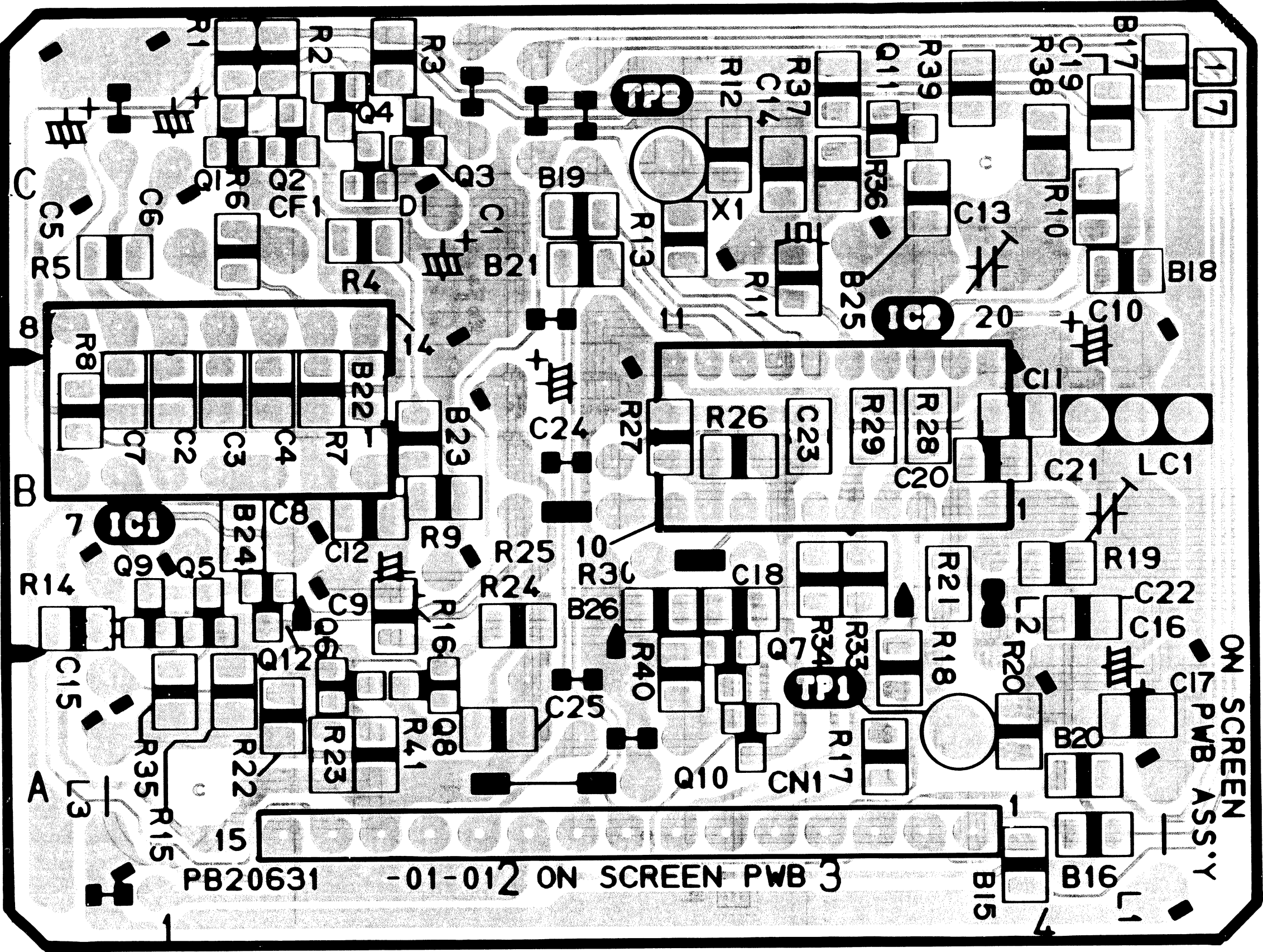
S35196

MAIN COMPONENT LOCATION GUIDE
<ON SCREEN BOARD>

REF No.	LOCATION
IC	
IC1	1B
IC2	3B
TRANSISTOR	
Q1	1C
Q2	1C
Q3	2C
Q4	2C
Q5	1B
Q6	2A
Q7	3B
Q8	2A
Q9	1B
Q10	3A
DIODE	
D1	2C
CONNECTOR	
CN1	3A
ADJUSTMENT	
C21	4B
TEST POINT	
TP1	4A
TP2	3C

LEADLESS COMPONENT PARTS
LOCATION GUIDE <ON SCREEN BOARD>

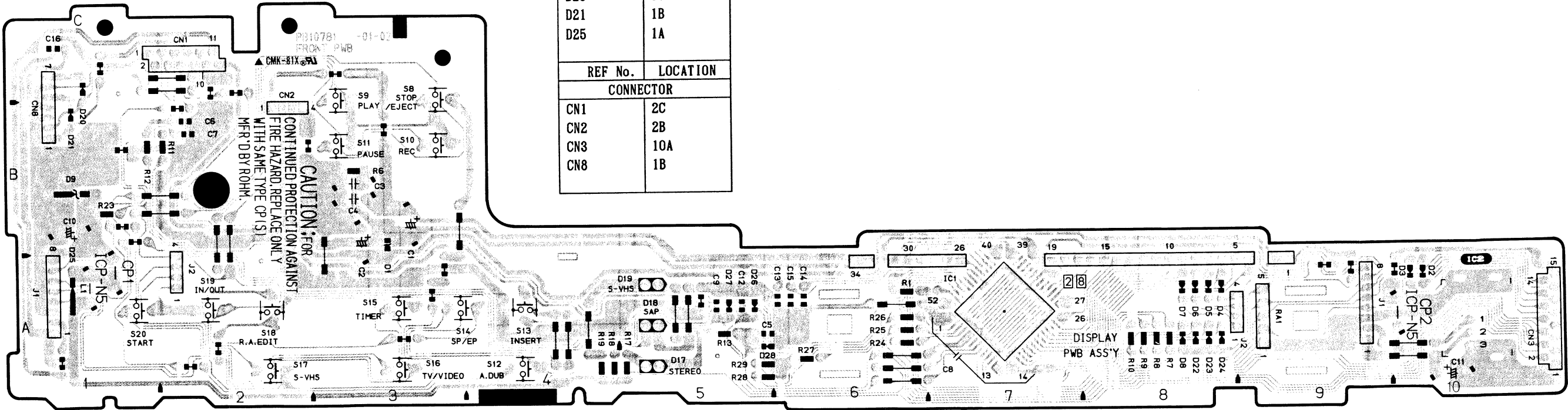
REF No.	LOCATION
TRANSISTOR	
Q1	1C
Q2	1C
Q3	2C
Q4	2C
Q5	1B
Q6	2A
Q7	3B
Q8	2A
Q9	1B
Q10	3A
Q11	3C
Q12	1B
DIODE	
D1	2C
RESISTOR	
R1	1C
R2	1C
R3	2C
R4	2C
R5	1C
R6	1C
R7	2B
R8	1B
R9	2B
R10	4C
R11	3C
R13	3C
R14	1B
R15	1A
R16	2B
R17	3A
R18	3A
R19	4B
R20	4A
R21	4B
R22	1A
R23	2A
R24	2B
R25	3B
R27	3B
R28	4B
R29	3B
R33	3B
R34	3B
R35	1A
R36	3C
R37	3C
R38	4C
R39	4C
R40	3A
R41	2A
CAPACITOR	
C2	1B
C3	1B
C4	1B
C7	1B
C11	4B
C12	2B
C14	3C
C17	4A
C18	3B
C19	4C
C20	4B
C22	4B
C23	3B
C25	2A





4.23 DISPLAY AND SW/JACK CIRCUIT BOARDS

— DISPLAY —



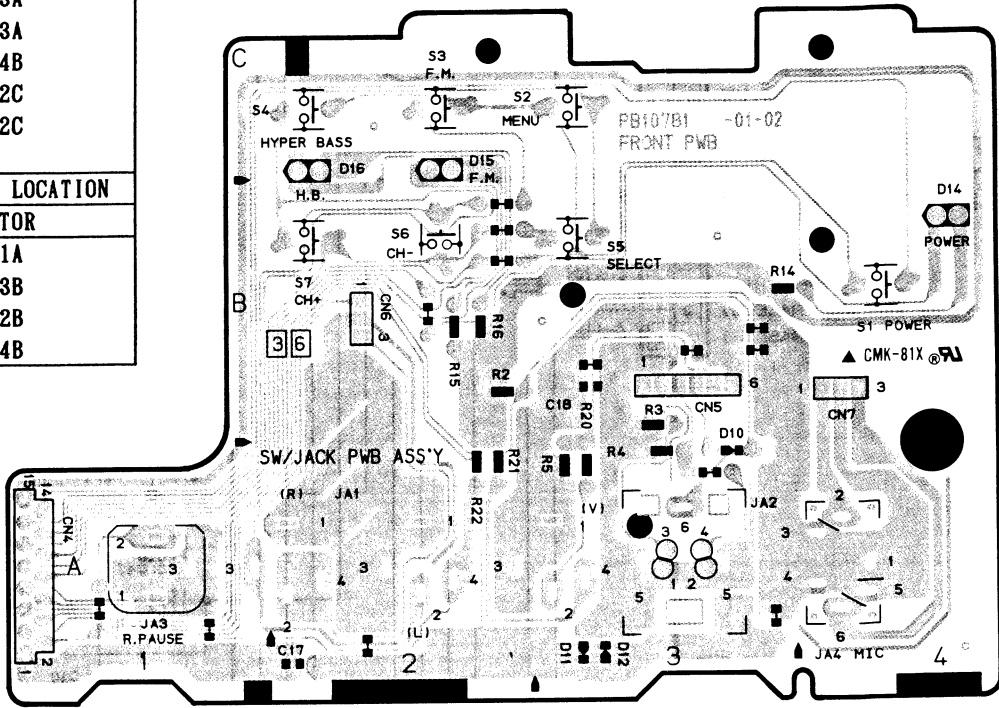
MAIN COMPONENT PARTS LOCATION GUIDE<DISPLAY C.B.A>

REF No.	LOCATION
IC	
IC1	7A
IC2	10A
REF No.	LOCATION
DIODE	
D1	3A
D2	10A
D3	10A
D4	8A
D5	8A
D6	8A
D7	8A
D17	5A
D18	5A
D19	5A
D20	1C
D21	1B
D25	1A
REF No.	LOCATION
CONNECTOR	
CN1	2C
CN2	2B
CN3	10A
CN8	1B

MAIN COMPONENT PARTS LOCATION GUIDE<SW/JACK C.B.A>

REF No.	LOCATION
DIODE	
D11	3A
D12	3A
D14	4B
D15	2C
D16	2C
REF No.	LOCATION
CONNECTOR	
CN4	1A
CN5	3B
CN6	2B
CN7	4B

— SW/JACK —





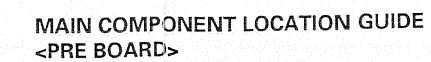
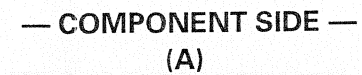
4

3

2

1

— FOIL SIDE —
(B)



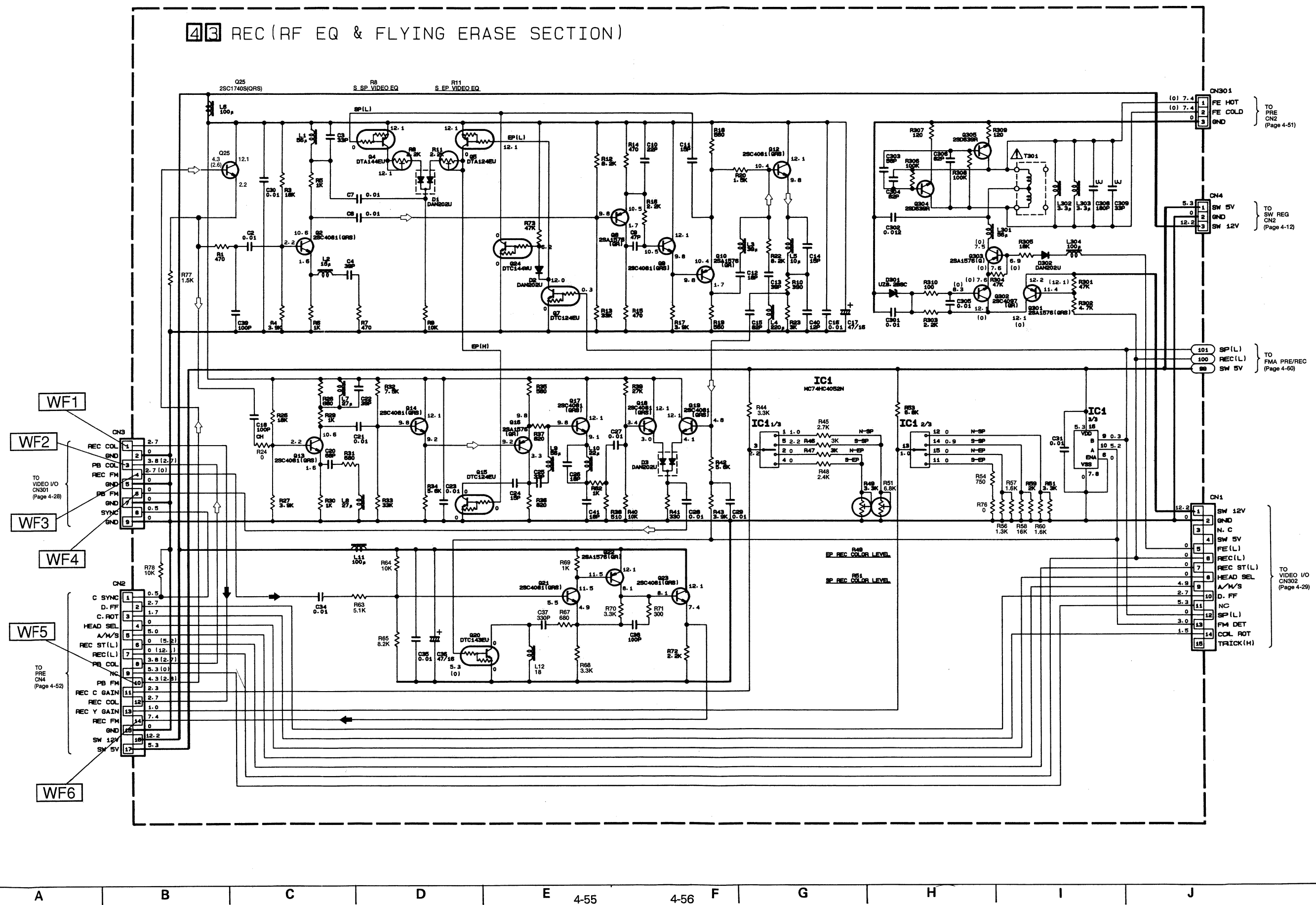
REF No.	LOCATION
IC	
IC1	A-3B
REF No.	LOCATION
TRANSISTOR	
Q3	A-4B
Q4	A-4C
Q5	A-4C
Q6	A-5C
Q7	A-4C
Q8	A-4C
REF No.	LOCATION
DIODE	
D1	B-3C
D2	B-3C
REF No.	LOCATION
CONNECTOR	
CN1	B-2A
CN2	B-1C
CN3	B-1C
CN4	B-2C
REF No.	LOCATION
ADJUSTMENT	
R25	A-5B

LEADLESS COMPONENT PARTS LOCATION GUIDE
<PRE BOARD>

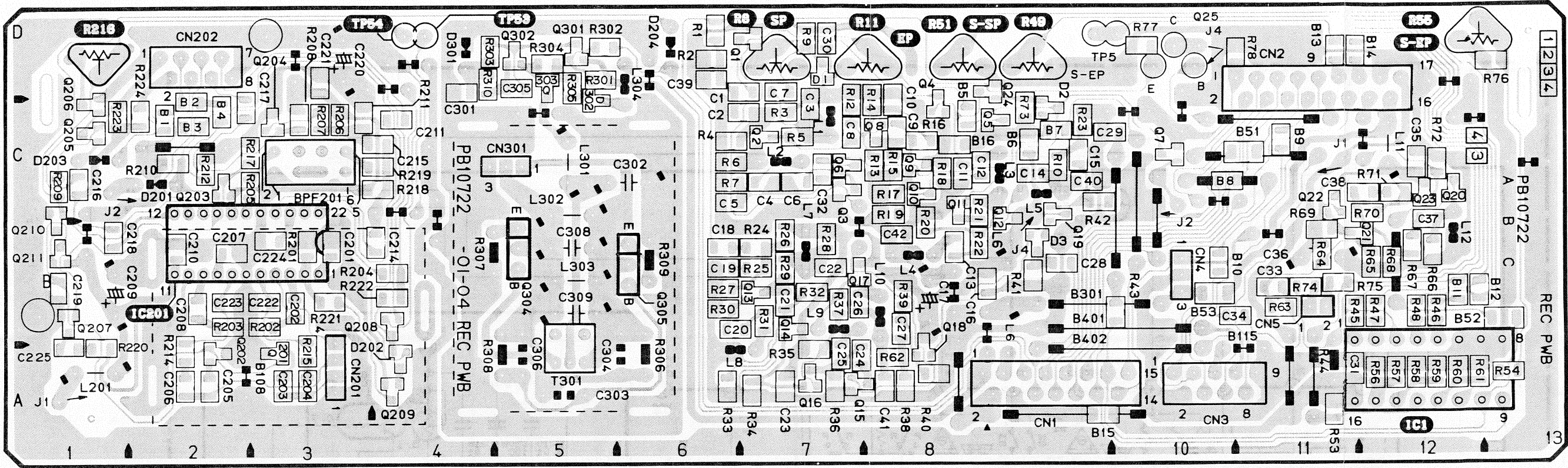
| REF No. | | LOCATION |
|------------|------|----------|
| IC | | |
| IC1 | A-3B | |
| REF No. | | LOCATION |
| TRANSISTOR | | |
| Q1 | B-4C | |
| Q2 | A-3C | |
| Q3 | A-4B | |
| Q4 | A-4C | |
| Q5 | A-4C | |
| Q6 | A-5C | |
| Q7 | A-4C | |
| Q8 | A-4C | |
| REF No. | | LOCATION |
| DIODE | | |
| D1 | B-3C | |
| D2 | B-3C | |
| D3 | B-4C | |
| REF No. | | LOCATION |
| RESISTOR | | |
| R1 | B-2B | |
| R2 | B-2B | |
| R3 | B-2B | |
| R4 | B-3B | |
| R7 | B-2A | |
| R8 | B-3A | |
| R9 | A-3C | |
| R10 | B-3C | |
| R11 | B-4C | |
| R12 | B-4C | |
| R13 | B-5C | |
| R14 | B-1C | |
| R15 | B-1C | |
| R16 | A-2C | |
| R17 | B-2C | |
| R18 | B-2C | |
| R19 | B-2C | |
| R20 | B-2C | |
| R21 | A-2C | |
| R22 | A-1C | |
| R23 | A-3C | |
| R24 | A-3C | |
| R25 | A-5B | |
| R26 | A-5B | |
| R27 | A-5B | |
| R28 | A-5B | |
| R29 | A-4C | |
| R30 | A-4C | |
| R31 | A-5C | |
| R32 | A-5C | |
| R33 | A-4B | |
| R50 | A-1C | |

| REF No. | | LOCATION |
|-----------|------|----------|
| CAPACITOR | | |
| C1 | A-2B | |
| C2 | A-2A | |
| C3 | A-2A | |
| C4 | A-3A | |
| C7 | A-2B | |
| C8 | A-2B | |
| C9 | A-2A | |
| C10 | A-3A | |
| C11 | A-3A | |
| C12 | A-3B | |
| C13 | B-2B | |
| C14 | B-2B | |
| C15 | B-2B | |
| C16 | B-3B | |
| C17 | B-3B | |
| C18 | A-3B | |
| C19 | B-2B | |
| C20 | B-3A | |
| C21 | B-4B | |
| C24 | A-2B | |
| C25 | A-2C | |
| C26 | B-3C | |
| C27 | A-3C | |
| C28 | A-3C | |
| C29 | B-3C | |
| C30 | A-3C | |
| C31 | B-3B | |
| C32 | B-3B | |
| C33 | A-3C | |
| C34 | A-3C | |
| C35 | B-4C | |
| C36 | A-3B | |
| C38 | B-2C | |
| C39 | B-2C | |
| C40 | B-2C | |
| C41 | B-3B | |
| C42 | A-3B | |
| C43 | A-3B | |
| C44 | B-3B | |
| C45 | B-2B | |
| C46 | B-4B | |
| C48 | B-3C | |
| C49 | A-4B | |
| C50 | A-4B | |
| C51 | A-5B | |
| C52 | A-4B | |

4.26 REC SCHEMATIC DIAGRAM



4.27 REC CIRCUIT BOARD



MAIN COMPONENT PARTS LOCATION GUIDE

| REF. No. | LOCATION |
|------------|----------|
| IC | |
| IC1 | 12A |
| TRANSISTOR | |
| Q2 | 7C |
| Q4 | 8C |
| Q5 | 9C |
| Q7 | 10C |
| Q8 | 8C |
| Q9 | 8C |
| Q10 | 8C |
| Q12 | 8B |
| Q13 | 7B |
| Q14 | 7B |
| Q15 | 7A |
| Q16 | 7A |
| Q17 | 7B |
| Q18 | 8A |
| Q19 | 9B |
| Q20 | 12C |
| Q21 | 12B |
| Q22 | 11C |
| Q23 | 12C |
| Q24 | 9D |
| Q25 | 10D |
| DIODE | |
| D1 | 7D |
| D2 | 9C |
| D3 | 9B |

LEADLESS COMPONENT PARTS LOCATION GUIDE

| REF. No. | LOCATION |
|------------|----------|
| CONNECTOR | |
| CN1 | 9A |
| CN2 | 11D |
| CN3 | 10A |
| CN4 | 10B |
| CN5 | 11B |
| CN201 | 3A |
| CN202 | 2D |
| CN301 | 5C |
| ADJUSTMENT | |
| R8 | 7D |
| R11 | 8D |
| R49 | 9D |
| R51 | 8D |
| R216 | 1D |
| TP | |
| TP5 | 9D |
| TP53 | 4D |
| TP54 | 4D |
| TRANSISTOR | |
| Q1 | 7D |
| Q2 | 7C |
| Q3 | 7C |
| Q4 | 8C |
| Q5 | 9C |
| Q6 | 7C |
| Q7 | 10C |
| Q8 | 8C |
| Q9 | 8C |
| Q10 | 8C |
| Q11 | 8C |
| Q12 | 9B |
| Q13 | 7B |
| Q14 | 7B |
| Q15 | 7A |
| Q16 | 7A |
| Q17 | 7B |
| Q18 | 8A |
| Q19 | 9B |
| Q20 | 12C |
| Q21 | 12B |
| Q22 | 11C |
| Q23 | 12C |
| Q24 | 9D |
| RESISTOR | |
| R1 | 6D |
| R2 | 6D |
| R3 | 7C |
| R4 | 6C |
| R5 | 7C |
| R6 | 6C |
| R7 | 6C |
| R9 | 7D |
| R10 | 9C |
| R12 | 7D |
| R13 | 8C |
| R14 | 8D |
| R15 | 8C |
| R16 | 8C |
| R17 | 8C |
| R18 | 8C |
| R19 | 8C |
| R20 | 8B |
| R21 | 8C |
| R22 | 8B |
| R23 | 9C |
| R24 | 7B |
| R25 | 7B |
| R26 | 7B |
| R27 | 6B |
| R28 | 7B |
| R29 | 7B |
| R30 | 6B |
| R31 | 7B |
| R32 | 7B |
| R33 | 6A |
| R34 | 7A |
| R35 | 7A |
| R36 | 7A |
| R37 | 7B |
| RESISTOR | |
| R38 | 8A |
| R39 | 8B |
| R40 | 5A |
| R41 | 9B |
| R42 | 9C |
| R43 | 10B |
| R45 | 11B |
| R46 | 12B |
| R47 | 12B |
| R48 | 12B |
| R53 | 11A |
| R54 | 13A |
| R56 | 12A |
| R57 | 12A |
| R58 | 12A |
| R59 | 12A |
| R60 | 12A |
| R61 | 12A |
| R62 | 5A |
| R63 | 11B |
| R64 | 11B |
| R65 | 12B |
| R66 | 12B |
| R67 | 12B |
| R68 | 12B |
| R69 | 11B |
| R70 | 12C |
| R71 | 12C |
| R72 | 12C |
| R73 | 9C |
| R74 | 11B |
| R75 | 11B |
| R76 | 13D |
| R77 | 10D |
| R78 | 10D |
| CAPACITOR | |
| C1 | 6C |
| C2 | 6C |
| C3 | 7C |
| C4 | 7C |
| C5 | 6C |
| C6 | 7C |
| C7 | 7D |
| C8 | 7C |
| C9 | 8C |
| C10 | 8C |
| C11 | 8C |
| C12 | 8C |
| C13 | 8B |
| C14 | 9C |
| C15 | 9C |
| C16 | 8B |
| C18 | 6B |
| C19 | 6B |
| C20 | 6B |
| C21 | 7B |
| C22 | 7B |
| C23 | 7A |
| C24 | 7A |
| C25 | 7A |
| C26 | 7B |
| C27 | 8B |
| C28 | 9B |
| C29 | 10C |
| C30 | 7D |
| C31 | 11A |
| C33 | 10B |
| C34 | 11B |
| C35 | 12C |
| C38 | 12C |
| C39 | 6D |

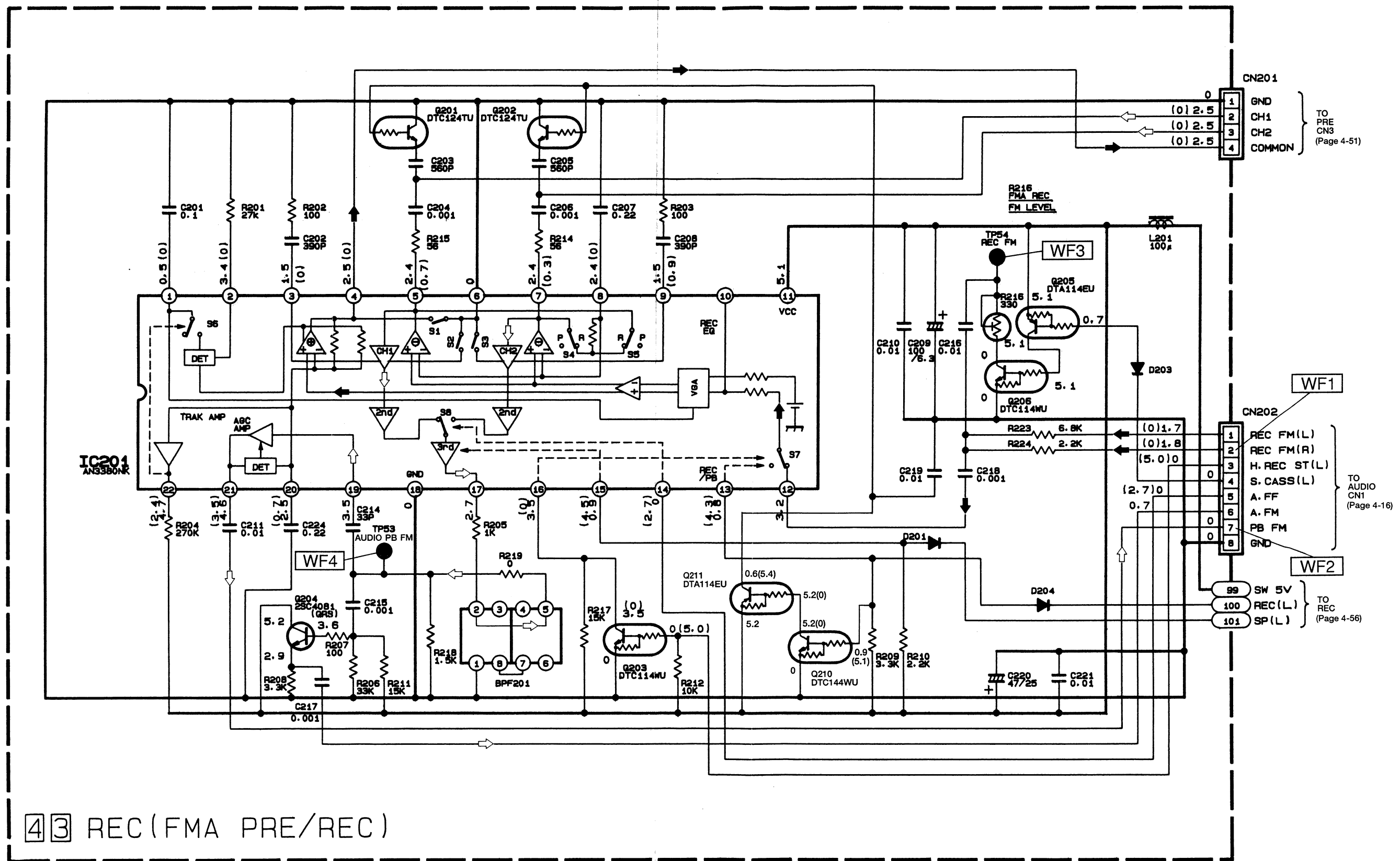
LEADLESS COMPONENT PARTS LOCATION GUIDE <FM AUDIO>

| REF. No. | LOCATION |
|------------|----------|
| CAPACITOR | |
| C40 | 9C |
| C41 | 8A |
| TRANSISTOR | |
| Q201 | 3A |
| Q202 | 2A |
| Q203 | 2C |
| Q204 | 3C |
| Q205 | 1C |
| Q206 | 1C |
| Q207 | 1B |
| Q208 | 4B |
| Q209 | 4A |
| Q210 | 1B |
| Q211 | 1B |
| DIODE | |
| D202 | 4A |
| RESISTOR | |
| R201 | 3B |
| R202 | 3B |
| R203 | 2B |
| R204 | 4B |
| R205 | 1C |
| R206 | 3C |
| R207 | 3C |
| R208 | 3C |
| R209 | 1C |
| R210 | 2C |
| R211 | 3C |
| R212 | 2C |
| R214 | 2A |
| R215 | 3A |
| RESISTOR | |
| R217 | 2C |
| R218 | 4C |
| R219 | 4C |
| R220 | 1A |
| R222 | 4B |
| R223 | 1C |
| R224 | 2C |
| CAPACITOR | |
| C201 | 3B |
| C202 | 3B |
| C203 | 3A |
| C204 | 3A |
| C205 | 2A |
| C206 | 2A |
| C207 | 2B |
| C208 | 2B |
| C210 | 2B |
| C211 | 4C |
| C214 | 4B |
| C215 | 4C |
| C216 | 1C |
| C217 | 2C |
| C218 | 1B |
| C219 | 1B |
| C221 | 3D |
| C222 | 3B |
| C223 | 2B |
| C224 | 3B |
| C225 | 1B |

LEADLESS COMPONENT PARTS LOCATION GUIDE <FIYING ERASE>

| REF. No. | LOCATION |
|------------|----------|
| TRANSISTOR | |
| Q301 | 5D |
| Q302 | 5D |
| Q303 | 5D |
| DIODE | |
| D302 | 5C |
| RESISTOR | |
| R301 | 5D |
| R302 | 5D |
| R303 | 4D |
| R304 | 5D |
| R305 | 4D |
| R310 | 4D |
| CAPACITOR | |
| C301 | 4D |
| C305 | 5D |

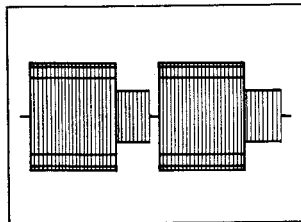
4.28 FM AUDIO PRE/REC SCHEMATIC DIAGRAM



4.29 WAVEFORMS

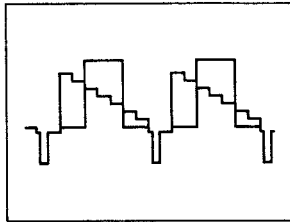
— VIDEO I/O —

WF1 TP330



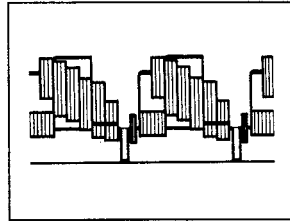
REC/PB 1.7 Vp-p

WF2 TP320



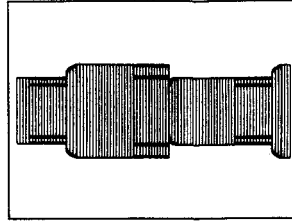
REC/PB 2.0 Vp-p

WF3 TP310



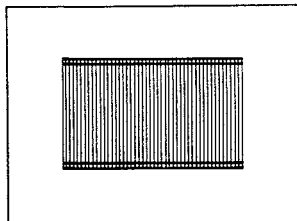
REC/PB 1.2 Vp-p

WF4 TP306



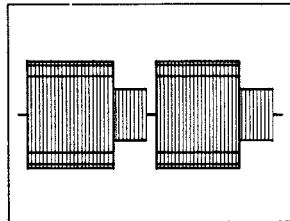
PB 0.68 Vp-p

WF5 TP301



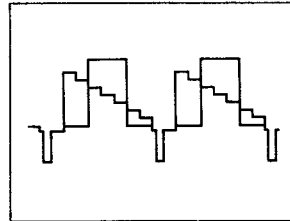
REC 0.34 Vp-p

WF6 TP305



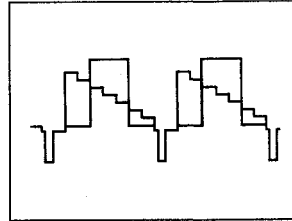
REC 0.2 Vp-p

WF7 TP357



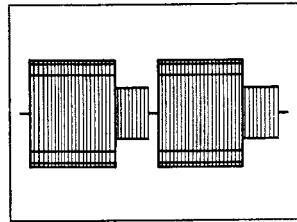
REC 1.1 Vp-p

WF8 TP355



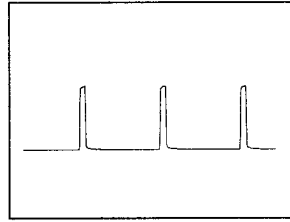
PB 0.6 Vp-p

WF9 TP356



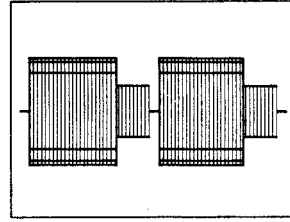
PB 0.8 Vp-p

WF10 TP312



REC 4.6 Vp-p

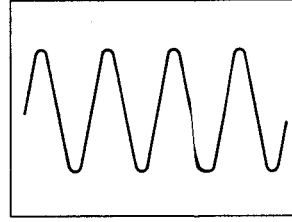
WF11 TP324



REC 1.0 Vp-p

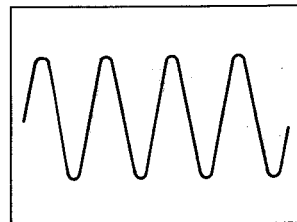
— AUDIO —

WF1



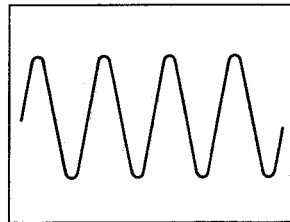
REC/PB 2.2 Vp-p

WF2



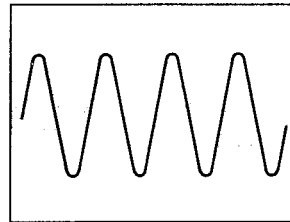
REC 2.3 Vp-p

WF3



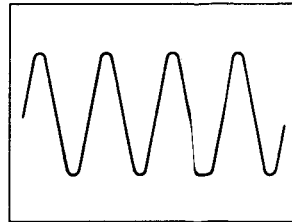
REC/PB 0.06 Vp-p

WF4



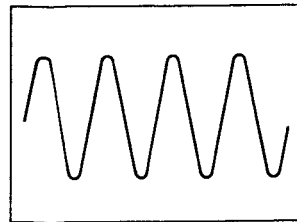
REC/PB 0.23 Vp-p

WF5 TP33



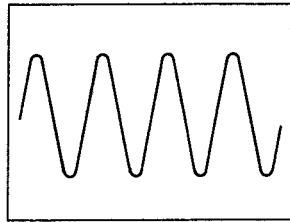
REC 4.2 Vp-p

WF6



REC 0.08 Vp-p

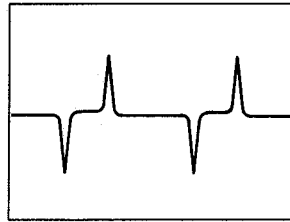
WF7



REC 0.06 Vp-p

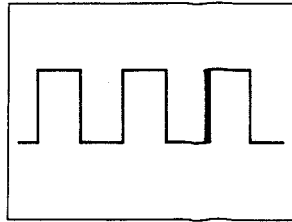
— SERVO —

WF1 TP401



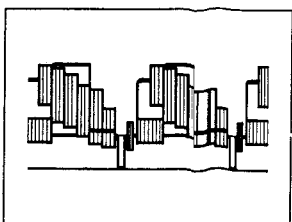
PB 2.6 Vp-p

WF2 TP411



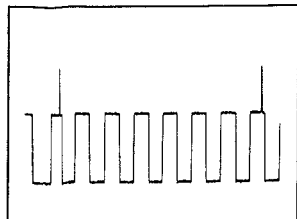
— ON SCREEN —

WF1



REC/PB 2.2 Vp-p

WF3



REC/PB 4.0 Vp-p

WF4



PB 0.12 Vp-p

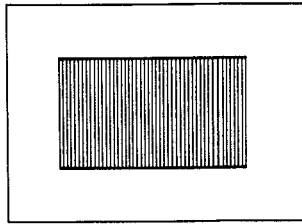
WF5



PB 0.015 Vp-p

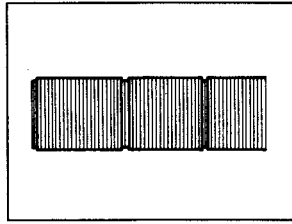
— VIDEO —

WF1 REC FM



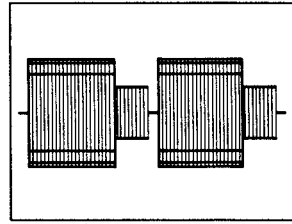
REC 0.25 Vp-p

WF2 PB FM



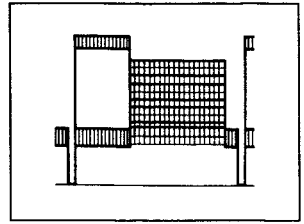
PB 0.48 Vp-p

WF3 REC CHROMA



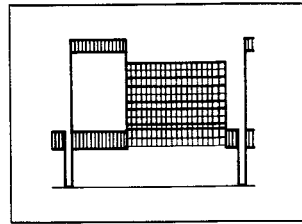
REC 0.22 Vp-p

WF4 PB Y



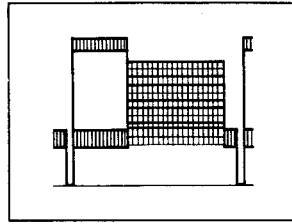
PB 1.1 Vp-p

WF5 REC Y



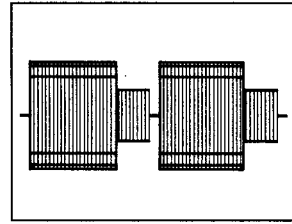
REC 1.0 Vp-p

WF6 PB Y



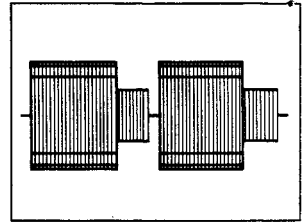
PB 0.6 Vp-p

WF7 REC COLOR



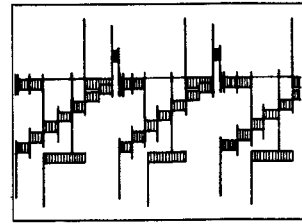
REC 0.5 Vp-p

WF8 PB COLOR



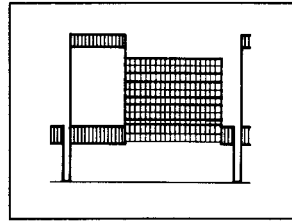
PB 0.44 Vp-p

WF9 TP4



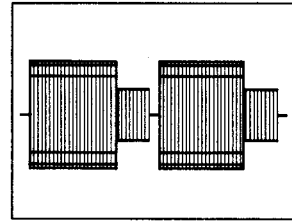
REC 0.84 Vp-p

WF10 TP25



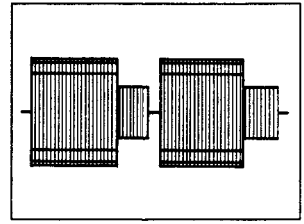
REC/PB 0.44 Vp-p

WF11 TP151



REC 0.4 Vp-p
PB 0.5 Vp-p

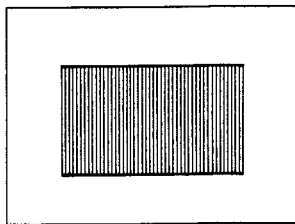
WF12



REC 0.2 Vp-p
PB 0.3 Vp-p

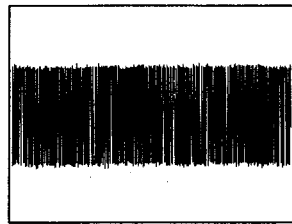
— FMA PRE/REC —

WF1 REC FM



REC 0.5 Vp-p

WF2 PB FM



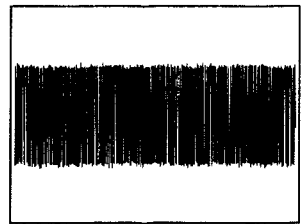
PB 0.4 Vp-p

WF3 TP54



REC 0.15 Vp-p

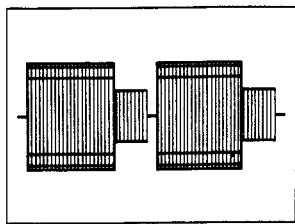
WF4 TP53



PB 0.1 Vp-p

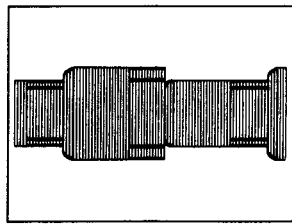
— REC —

WF1 REC COLOR



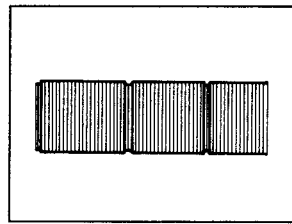
REC 0.2 Vp-p

WF2 PB FM



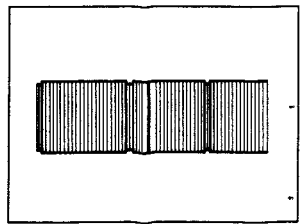
PB 0.6 Vp-p

WF3 REC FM



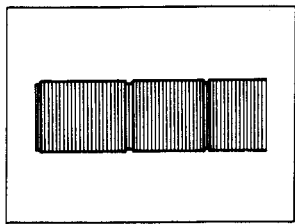
REC 0.2 Vp-p

WF4 PB FM



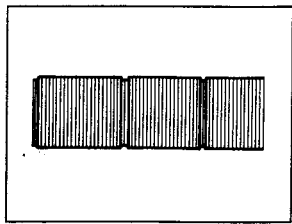
PB 0.4 Vp-p

WF5 PB FM



PB 0.3 Vp-p

WF6 REC FM



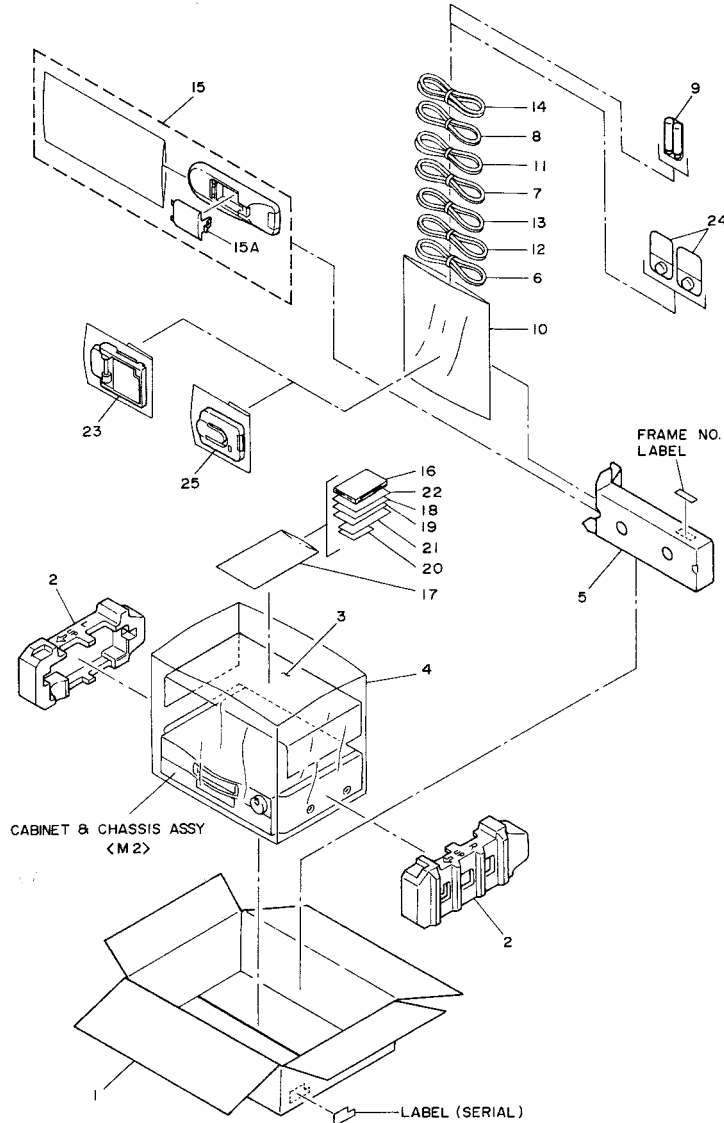
REC 0.25 Vp-p

SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the $\triangle$ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>



$\triangle$ REF No. PART No. PART NAME, DESCRIPTION

PACKING ASSEMBLY <M1>

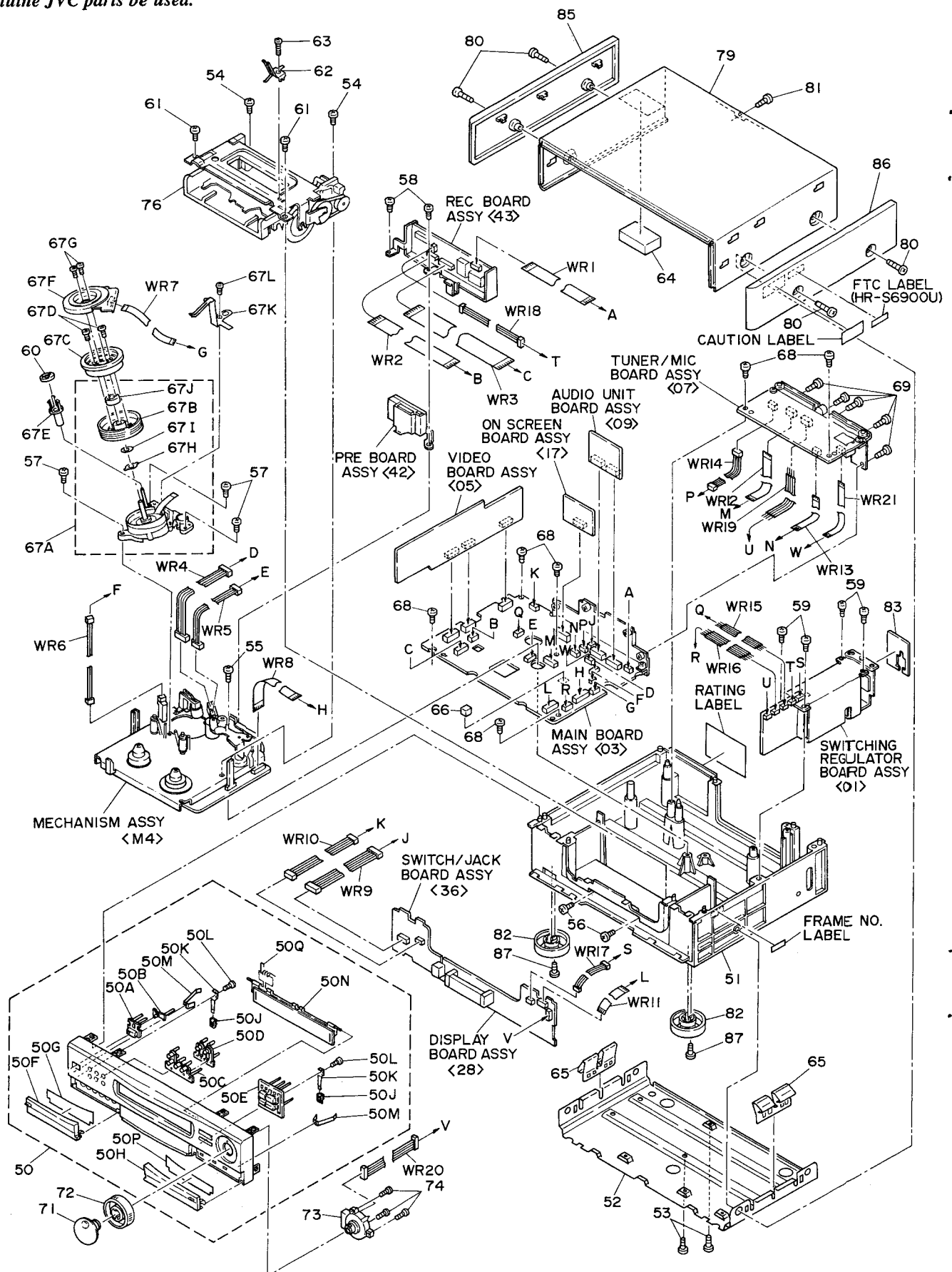
| | | |
|----|---------------|----------------------------|
| 1 | PQ34774 | PACKING CASE,HR-S4900U |
| | PQ34865 | PACKING CASE,HR-S6900U |
| 2 | PQ34700A-2 | CUSHION ASSEMBLY,HR-S6900U |
| | PQ34743A-2 | CUSHION ASSEMBLY,HR-S4900U |
| 3 | PQ41026-33 | PROTECT SHEET,HR-S4900U |
| | PQ34189-8 | WADDING PAPER,HR-S6900U |
| 4 | PQM30021-82 | POLY BAG |
| 5 | PQ34715 | CASE(ACCESSORY) |
| 6 | PU59168-5 | RF CABLE |
| 7 | PU60111 | S CABLE |
| 8 | PEAC0135 | PIN CORD |
| 9 | R6PRPA-2ST | BATTERY,X2 |
| 10 | QPGA020-02005 | POLY BAG |
| 11 | PEAC0262 | PIN CORD |
| 12 | PU56142-3 | PIN CORD ASSY |

| # $\triangle$ REF No. | PART No. | PART NAME, DESCRIPTION |
|-----------------------|----------|--|
| | 13 | PU59205-3 PIN JACK CABLE |
| $\triangle$ | 14 | QMP14H0-183B POWER CORD |
| $\triangle$ | 15 | PQ11374D REMOTE CONTROLLER,HR-S6900U |
| $\triangle$ | | PQ11533B REMOTE CONTROLLER,HR-S4900U |
| | 15A | PQ34388 CAP(BATTERY),HR-S6900U |
| | | PQ46061-2 CAP(BATTERY),HR-S4900U |
| $\triangle$ | 16 | PU30425-1372 INSTRUCTIONS,HR-S6900U |
| $\triangle$ | | PU30425-1371 INSTRUCTIONS,HR-S4900U |
| | 17 | QPGA025-03505 POLY BAG |
| | 18 | BT-51005-1 WARRANTY INF. |
| | 19 | PU61420 SHEET(RF SW) |
| | 20 | BT-51006-1 REGIST.CARD |
| $\triangle$ | 21 | PU33941-3-3 SAFETY CAUTION |
| | 22 | PU36560 CONECTION SHEET |
| $\triangle$ | 23 | PQ34817A REMOTE CONTROLLER,HR-S6900U (CABLE TV) |
| $\triangle$ | 24 | YU40547 BATTERY,S4900U X1 S 6900U X2 |
| $\triangle$ | 25 | PQ34835A-2 REMOTE CONTROLLER (R EDIT), HR-S6900U |

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



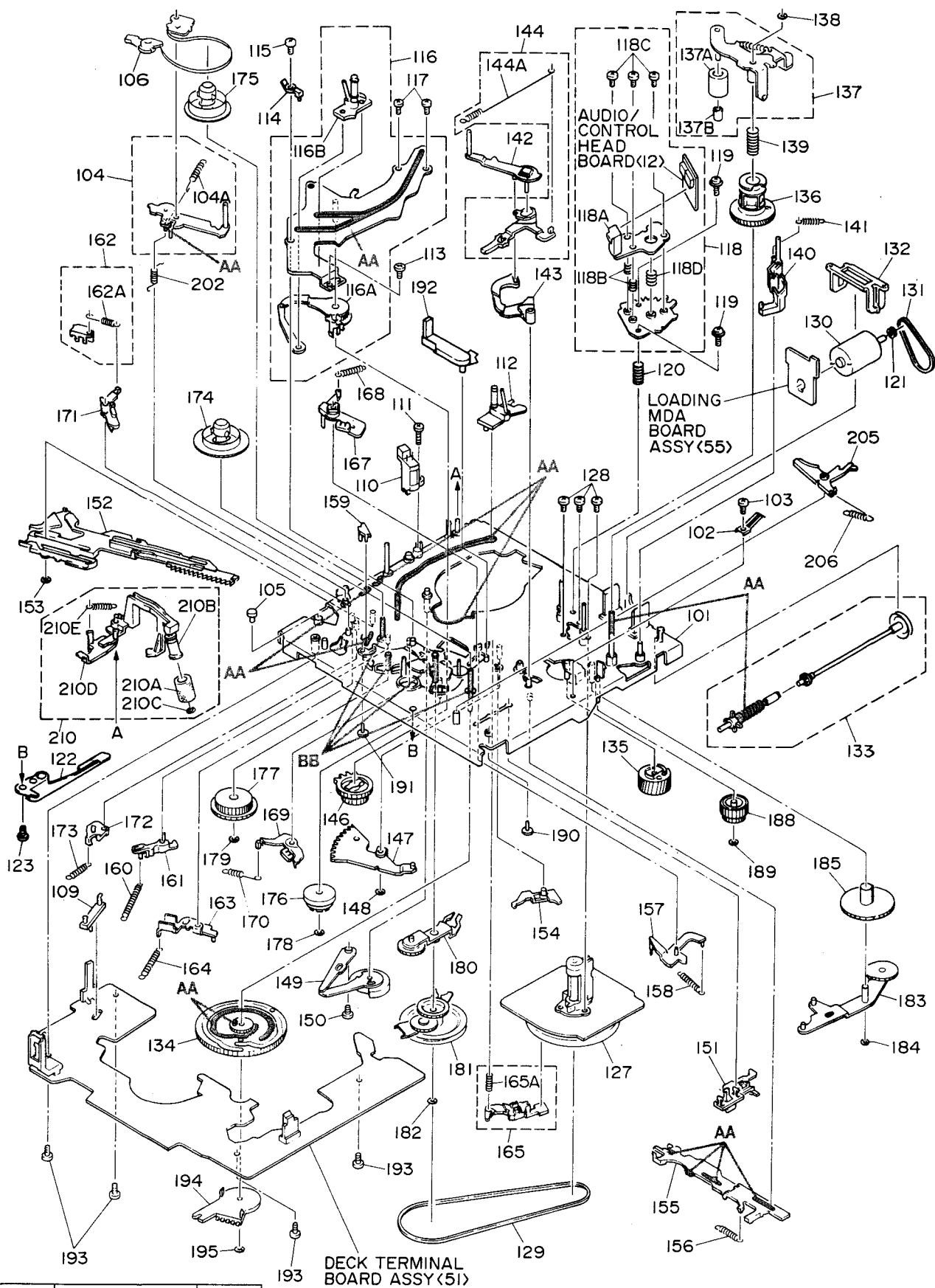
#△ REF No. PART No. PART NAME, DESCRIPTION

CABINET ASSEMBLY <M2>

| | | |
|-------|-----------------|------------------------------|
| 50 | PQ11531A-2 | FRONT PANEL ASSY,HR-S4900U |
| | PQ11531B | FRONT PANEL ASSY,HR-S6900U |
| 50A | PQ34725 | BUTTON(POWER) |
| 50B | PQ46050 | INDICATOR |
| 50C | PQ21549 | BUTTON(1) |
| 50D | PQ21550 | BUTTON(2) |
| 50E | PQ21559 | BUTTON(OPE) |
| 50F | PQ21547 | DOOR(L),HR-S4900U |
| | PQ21547-2 | DOOR(L),HR-S6900U |
| 50G | PQ34734 | PLATE(DOOR L) |
| 50H | PQ21548 | DOOR(R) |
| 50J | PQ46167 | SPRING(2),X2 |
| 50K | PQ46166 | SPRING(1),X2 |
| 50L | SDSF2005Z | SCREW,X2 |
| 50M | PQ34736 | EARTH PLATE,X2 |
| 50N | PQ21560 | CASSETTE DOOR |
| 50P | PQ34735-1-2 | PLATE(DOOR R) |
| 50Q | 45704 | TORSION SPRING |
| △ 51 | PQ11479-2-5 | BOTTOM CHASSIS |
| △ 52 | PQ11488-1-3 | BOTTOM COVER |
| 53 | SDSF3010Z | SCREW,X2 BOTTOM COVER |
| 54 | SDST2610Z | SCREW,X2 CASSETTE HOUSING |
| 55 | PQ43831 | SPECIAL SCREW,MECH ASSY |
| 56 | SDST4010Z | SCREW,X2 MECH ASSY |
| 57 | SDST2612Z | SCREW,X3 DRUM |
| 58 | SDSG2606Z | SCREW,X2 REC |
| 59 | SDSF3010Z | SCREW,X4 SW REG |
| 60 | PQ45339-2-3 | INERTIA PLATE |
| 61 | SDSF3008Z | SCREW,X2 CASSETTE HOUSING |
| 62 | PQ46083 | EARTH PLATE,CASSETTE HOUSING |
| 63 | SPST2604Z | SCREW,CASSETTE HOUSING |
| 64 | PQM30029-199-10 | SPACER, TOP COVER |
| 65 | PQ34795 | EARTH PLATE,X2 BOTTOM COVER |
| 66 | PQM30029-205 | SPACER |
| 67A | PDM2247A | DRUM SUB ASSY |
| 67B | PDM3353N | UPPER DRUM ASSY |
| 67C | PDZ0136 | ROTOR ASSY |
| 67D | SPSH2660Z | SCREW,X2 |
| 67E | PDM4300A-3 | I.D.ROLLER ASSY |
| △ 67F | PDZ0119-5 | STATOR ASSY |
| 67G | SPSP2606Z | SCREW,X2 |
| 67H | PDM4314A-2 | BRUSH ASSEMBLY |
| 67I | PDM4050-9 | WASHER |
| 67J | PDM4332A | COLLAR ASSY |
| 67K | PDM3372 | EARTH PLATE |
| 67L | SPSG2606Z | SCREW |
| 68 | SDSF3010Z | SCREW,X6 MAIN TUNER |
| 69 | SDSF3010M | SCREW,X5 TERMINAL |
| 71 | PQ34858A | KNOB(JOG)ASSY,HR-S4900U |
| | PQ34858B | KNOB(JOG)ASSY,HR-S6900U |
| 72 | PQ34698-1-2 | KNOB(SHUTTLE),HR-S4900U |
| | PQ34698-2 | KNOB(SHUTTLE),HR-S6900U |

| | | |
|------------|-----------------|----------------------------|
| #△ REF No. | PART No. | PART NAME, DESCRIPTION |
| 73 | PEME0757-03 | JOG SHUTTLE ASSY |
| 74 | SDSF2608Z | SCREW,X3 |
| 76 | PUS29662A-3 | CASSETTE HOUSING ASSEMBLY |
| △ 79 | PQ11487-3-4 | TOP COVER,HR-S4900U |
| △ | PQ11487-4-4 | TOP COVER,HR-S6900U |
| 80 | PQ43827 | SP SCREW,X4 T COVER S4900U |
| | PQ43930 | SP SCREW,X4 T COVER S6900U |
| 81 | SDSF3010M | SCREW, TOP COVER |
| 82 | PQ45976C | FOOT ASSEMBLY,X2 |
| △ 83 | PQ34613-2 | SHEET(BRACKET) |
| 85 | PQ11516-2 | SIDE PANEL(L),HR-S6900U |
| 86 | PQ11517-2 | SIDE PANEL(R),HR-S6900U |
| 87 | SDSF3010Z | SCREW,X2 FOOT ASSY |
| WR1 | PW30802-0818 | FFC WIRE,CN1 |
| WR2 | PW30804-0928 | FFC WIRE,CN301 |
| WR3 | PW30804-1534 | FFC WIRE,CN302 |
| WR4 | PW30504-04W2407 | WIRE,CN101 |
| WR5 | PW30504-03W3601 | WIRE,CN401 |
| WR6 | PW30504-02W5201 | WIRE,CN102 |
| WR7 | PW30803-0450 | FFC WIRE,CN402 |
| WR8 | PW30802-1626 | FFC WIRE,CN601 |
| WR9 | PW30504-03W6405 | WIRE,CN3 |
| WR10 | PW30504-06W5205 | WIRE,CN201 |
| WR11 | PW30802-1136 | FFC WIRE,CN701 |
| WR12 | PW30802-0818 | FFC WIRE,CN603 |
| WR13 | PW30803-0524 | FFC WIRE,CN4 |
| WR14 | PW30218-0332013 | WIRE,CN5 |
| WR15 | PW30603-04448 | WIRE,REG CN3 |
| WR16 | PW30603-05D22 | RIBBON JUMPER,REG CN5 |
| WR17 | PW30603-04936 | RIBBON JUMPER,REG CN1 |
| WR18 | PW30349-0334411 | WIRE,REG CN2 |
| WR19 | PW30604-04347 | WIRE,CN4 |
| WR20 | PW30218-07708 | WIRE,JOG |
| WR21 | PW30803-0426 | FFC WIRE,CN2 HR-S6900U |

5.3 MECHANISM ASSEMBLY <M4>



| Category | Part number | MARK |
|----------|---------------|------|
| Grease | KANTO-G-31KAV | AA |
| Oil | COSMO-HV56 | BB |

NOTE:The section marked in AA and BB indicate lubrication and greasing areas.

#△ REF No. PART No. PART NAME, DESCRIPTION

MECHANISM ASSEMBLY <M4>

| | | |
|-------|-----------------|-------------------------|
| 101 | PQ11473B-4 | MAIN DECK ASSY |
| 102 | PQ43849 | EARTH PLATE |
| 103 | SPST2604Z | SCREW |
| 104 | PQ45887A-2 | TENSION ARM ASSY |
| 104A | PQ45373-1-3 | TENSION SPRING |
| 105 | PQ45374-1-2 | ADJUST PIN |
| 106 | PQ34629A | TENSION BAND ASSY |
| 109 | PQ34631 | SPRING BASE |
| 110 | PEHE0287 | FULL ERASE HEAD |
| 111 | SDSF2614Z | SCREW |
| 112 | PQ34749A-1 | POLE BASE ASSY(SUPPLY) |
| 113 | SDST2608Z | SCREW |
| 114 | PQ45444 | STOPPER |
| 115 | SPSF2006Z | SCREW |
| 116 | PQ34619A-1 | LOADING ASSY(TAKE UP) |
| 116A | PQ45286D-3 | SPRING STAY ASSY |
| 116B | PQ34756A | POLE BASE ASSY(TAKE UP) |
| 117 | SDSF2608Z | SCREW,X2 |
| 118 | PQ45355C | AC HEAD ARM ASSEMBLY |
| 118A | PEHE0262 | AC HEAD |
| 118B | PQM30002-192 | COMPRESSION SPRING,X2 |
| 118C | PQ43687A | SPECIAL SCREW,X3 |
| 118D | PQM30002-211 | COMPRESSION SPRING |
| 119 | SPSF2608M | SCREW,X2 |
| 120 | PQM30002-216 | COMPRESSION SPRING |
| 121 | PQ43546-1-2 | MOTOR PULLEY |
| 122 | PQ46099 | CAPSTAN BRACKET |
| 123 | SDST2606Z | SCREW |
| △ 127 | PU61313 | CAPSTAN MOTOR |
| 128 | SPSG2608Z | SCREW,X3 |
| 129 | PQM30003-27 | BELT(CAPSTAN MOTOR) |
| △ 130 | PU60628-2 | LOADING MOTOR |
| 131 | PQM30003-28-14 | BELT(MODE MOTOR) |
| 132 | PQ34025 | MOTOR HOLDER |
| 133 | PQ45917A-1 | WORM CLUTCH ASSY |
| 134 | PQ11468-1-3 | CONTROL CAM |
| 135 | PQ34630 | RELAY CAM |
| 136 | PQ21481 | PINCH ROLLER CAM |
| 137 | PQ45921A-6 | PINCH ROLLER ARM ASSY |
| 137A | PQ42007C-2 | PINCH ROLLER ASSY |
| 137B | PQ43566 | PINCH ROLLER CAP |
| 138 | PQM30017-12 | SLIT WASHER |
| 139 | PQM30002-223 | COMPRESSION SPRING |
| 140 | PQ34564 | PINCH ROLLER LEVER |
| 141 | PQM30001-371-92 | TENSION SPRING |
| 142 | PQ45924A-3 | GUIDE ARM ASSY |
| 143 | PQ34566-1-2 | ARM LEVER |
| 144 | PQ45925A-1 | SUB BRAKE ASSY(TAKE UP) |
| 144A | PQ45926-1-2 | TENSION SPRING |
| 146 | PQ34033 | LOADING GEAR(TAKE UP) |
| 147 | PQ46217A | ARM GEAR |
| 148 | PQM30017-30 | SLIT WASHER |

| | | |
|------------|-----------------|-------------------------------|
| #△ REF No. | PART No. | PART NAME, DESCRIPTION |
| 149 | PQ45298C | LOADING GEAR ASSY(SUPPLY) |
| 150 | PQ45913 | SPECIAL SCREW |
| 151 | PQ45399A-3 | SLIDING BASE ASSY |
| 152 | PQ11469-1-5 | CONTROL PLATE |
| 153 | PQM30017-45 | SLIT WASHER |
| 154 | PQ45402 | RESET LEVER |
| 155 | PQ21482-1-4 | SLIDE PLATE |
| 156 | PQM30001-377 | TENSION SPRING |
| 157 | PQ34569-1-3 | I.CANCEL LEVER |
| 158 | PQM30001-331-72 | TENSION SPRING |
| 159 | PQ34570-1-2 | TAKE UP HEAD |
| 160 | PQ46024 | TENSION SPRING |
| 161 | PQ34571-1-2 | T-UP LEVER |
| 162 | PQ45929A-3 | SLIDER ASSY |
| 162A | PQ46003-1-5 | TENSION SPRING |
| 163 | PQ34572 | REVERSE TENSION LEVER |
| 164 | PQM30001-343-78 | TENSION SPRING |
| 165 | PQ45930A-3 | CAPSTAN BRAKE ASSY |
| 165A | PQM30001-378 | TENSION SPRING |
| 167 | PQ45932B | M.BRAKE(T) ASSY |
| 168 | PQM30001-331-72 | TENSION SPRING |
| 169 | PQ45933A | MAIN BRAKE ASSY(SUPPLY) |
| 170 | PQM30001-374 | TENSION SPRING |
| 171 | PQ34574 | SUB BRAKE(SUPPLY) |
| 172 | PQ45934-1-1 | OFF LEVER |
| 173 | PQM30001-347-74 | TENSION SPRING |
| 174 | PQ45935B | REEL DISK ASSY(TAKE UP) |
| 175 | PQ45524A-4 | REEL DISK ASSY(SUPPLY) |
| 176 | PU61388 | CLUTCH GEAR UNIT(TAKE UP) |
| 177 | PU61389 | CLUTCH GEAR UNIT(SUPPLY) |
| 178 | PQM30017-7 | SLIT WASHER |
| 179 | PQM30017-7 | SLIT WASHER |
| 180 | PU61390 | IDLER UNIT (D) |
| 181 | PU61317-1-3 | CENTER GEAR UNIT |
| 182 | PQM30017-30 | SLIT WASHER |
| 183 | PQ45943A-1 | DRIVE ARM ASSY |
| 184 | PQM30017-47 | SLIT WASHER |
| 185 | PQ45945 | RELAY GEAR |
| 188 | PQ45434 | CASSETTE HOUSING GEAR |
| 189 | PQM30017-47 | SLIT WASHER |
| 190 | PQ45439 | S SWITCH PIN (S CASSETTE DET) |
| 191 | PQ45981 | C.SWITCH PIN |
| 192 | PQ21488 | LED GUIDE |
| 193 | SDSF2608Z | SCREW,X4 |
| 194 | PU61322-1-2 | ROTARY ENCODER |
| 195 | PQM30017-40 | SLIT WASHER |
| 202 | PQ45768-1-3 | TORSION SPRING (TENSION ARM) |
| 205 | PQ45927A-1 | SUB BRAKE ASSY(TAKE UP 2) |
| 206 | PQM30001-376 | TENSION SPRING |
| 210 | PQ45561A-2 | CLEANER ASSEMBLY |
| 210A | PQ44837-2 | CLEANER |
| 210B | PQ45689 | ROLLER |
| 210C | PQM30017-38 | SLIT WASHER |
| 210D | PQ34047-1-2 | LIMITTER LEVER |
| 210E | PQM30001-323 | TENSION SPRING |

5.4 ELECTRICAL PARTS LIST

#△ REF No. PART No. PART NAME, DESCRIPTION

SWITCHING REGULATOR BOARD ASSEMBLY <01>

| | | | |
|-------|-----------------|-----------------------------|-------------|
| PWBA1 | PB20625B | SWITCH REGULATOR BOARD ASSY | |
| IC2 | BA10324A | IC | |
| | or LM324N | IC | |
| IC3 | XRA10358 | IC | |
| | or LM358N | IC | |
| | or BA10358 | IC | |
| Q1 | 2SC4161(MN)-CB7 | TRANSISTOR | |
| Q2 | 2SC3616(LK) | TRANSISTOR | |
| Q3 | 2SC3616(MLK) | TRANSISTOR | |
| Q4 | 2SD1913(RS) | TRANSISTOR | |
| | or 2SD2061(EF) | TRANSISTOR | |
| | or 2SD2375(QP) | TRANSISTOR | |
| Q5 | 2SD1913(RS) | TRANSISTOR | |
| | or 2SD2061(EF) | TRANSISTOR | |
| | or 2SD2375(QP) | TRANSISTOR | |
| Q7 | DTA114ES | TRANSISTOR | |
| D1 | 10E6-F2 | DIODE | |
| D2 | 10E6-F2 | DIODE | |
| D3 | 10E6-F2 | DIODE | |
| D4 | 10E6-F2 | DIODE | |
| D5 | 11ES2 | DIODE | |
| D6 | AG01 | FR DIODE | |
| D7 | 1SS133 | DIODE | |
| D8 | AU01Z | FR DIODE | |
| D9 | 1SS133 | DIODE | |
| D10 | RD18ES-T1B1 | ZENER DIODE | |
| D11 | AK04 | DIODE | |
| D12 | 1SR153-200-T2 | FR DIODE | |
| D14 | MA644 | FR DIODE | |
| D15 | FMB-24 | BARRIER DIODE | |
| D16 | 1SR153-200-T2 | FR DIODE | |
| D17 | RD6.2ES-T1B1 | ZENER DIODE | |
| D18 | 1SS133 | DIODE | |
| D19 | 1SS133 | DIODE | |
| D20 | 1SS133 | DIODE | |
| D21 | 1SS133 | DIODE | |
| D22 | MTZ30AT-77 | ZENER DIODE | |
| D23 | RD5.1ES-T1B3 | ZENER DIODE | |
| D26 | 1SS133 | DIODE | |
| D27 | 1SS133 | DIODE | |
| D30 | 11ES2 | DIODE | |
| D32 | RD5.1ES-T1B3 | ZENER DIODE | |
| D34 | HZ22CP | ZENER DIODE | |
| D40 | MTZ10AT-77 | ZENER DIODE | |
| D41 | 1SS133 | DIODE | |
| D42 | AU01Z | FR DIODE | |
| △ R1 | QRC122K-225E | RESISTOR | 2.2MΩ, 1/2W |
| R2 | QRM025K-1R0 | MP RESISTOR | 1Ω, 2W |
| R3 | QRD161J-823 | RESISTOR | 82KΩ, 1/6W |
| R4 | QRD161J-823 | RESISTOR | 82KΩ, 1/6W |
| R5 | QRD161J-473 | RESISTOR | 47KΩ, 1/6W |
| R6 | QRG032J-683 | OMF RESISTOR | 68KΩ, 3W |
| R8 | QRG032J-151 | OMF RESISTOR | 150Ω, 3W |
| R9 | QRX014J-R33Z | MF RESISTOR | 0.33Ω, 1W |
| R10 | QRD161J-821 | RESISTOR | 820Ω, 1/6W |
| R11 | QRD161J-122 | RESISTOR | 1.2KΩ, 1/6W |
| R12 | QRD161J-682 | RESISTOR | 6.8KΩ, 1/6W |
| R13 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |

| | | | |
|------------|----------------|------------------------|--------------|
| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
| R14 | QRD161J-561 | RESISTOR | 560Ω, 1/6W |
| R15 | QRG02DJ-7R5X | OMF RESISTOR | 7.5Ω, 2W |
| R16 | QRG02DJ-222X | OMF RESISTOR | 2.2KΩ, 2W |
| △ R17 | QRZ0077-101X | FUSIBLE RESISTOR | 100Ω, 1/4W |
| R18 | QRD161J-222 | RESISTOR | 2.2KΩ, 1/6W |
| R19 | QRD161J-222 | RESISTOR | 2.2KΩ, 1/6W |
| R20 | QRD161J-222 | RESISTOR | 2.2KΩ, 1/6W |
| R21 | QRD161J-332 | RESISTOR | 3.3KΩ, 1/6W |
| R22 | QRD161J-393 | RESISTOR | 39KΩ, 1/6W |
| R23 | QRD161J-681 | RESISTOR | 680Ω, 1/6W |
| R24 | QRD161J-823 | RESISTOR | 82KΩ, 1/6W |
| R25 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |
| R26 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W |
| R27 | QRD161J-823 | RESISTOR | 82KΩ, 1/6W |
| R28 | QRD161J-122 | RESISTOR | 1.2KΩ, 1/6W |
| R29 | QRD161J-333 | RESISTOR | 33KΩ, 1/6W |
| R30 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |
| R31 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |
| R33 | QRD161J-274 | RESISTOR | 270KΩ, 1/6W |
| R34 | QVPA606-332Z | V RESISTOR, SWD 5V | |
| R35 | QRD161J-682 | RESISTOR | 6.8KΩ, 1/6W |
| R36 | QRV144F-8451AY | CMF RESISTOR | 8.45KΩ, 1/4W |
| R37 | QRV144F-1022AY | CMF RESISTOR | 10.2KΩ, 1/4W |
| R39 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |
| R40 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W |
| R49 | QRD161J-221 | RESISTOR | 220Ω, 1/6W |
| R51 | QRD161J-332 | RESISTOR | 3.3KΩ, 1/6W |
| R52 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |
| R53 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W |
| △ R54 | QRZ0077-220X | FUSIBLE RESISTOR | 22Ω, 1/4W |
| R55 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W |
| R56 | QRD161J-222 | RESISTOR | 2.2KΩ, 1/6W |
| R57 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W |
| R58 | QRD161J-681 | RESISTOR | 680Ω, 1/6W |
| R59 | QRG02DJ-7R5X | OMF RESISTOR | 7.5Ω, 2W |
| △ C1 | QFZ9022-683 | F CAPACITOR | 0.068μF |
| △ C5 | QCZ9016-470J | CAPACITOR | 47p |
| △ C6 | QCZ9016-470J | CAPACITOR | 47p |
| △ C7 | QCZ9052-332 | CAPACITOR | 0.0033μF |
| C9 | QCZ0212-472 | CAPACITOR | 0.0047μF, 1K |
| C10 | QCZ0136-331Z | CAPACITOR | 330p |
| C11 | QETC1HM-225 | E CAPACITOR | 2.2μF, 50V |
| C12 | QETM2DM-107R | E CAPACITOR | 100μF, 200V |
| C14 | QFLA1HJ-103Z | M CAPACITOR | 0.01μF, 50V |
| C15 | QFV11HJ-824 | F CAPACITOR | 0.82μF, 50V |
| C16 | QCSB1HJ-560 | CAPACITOR | 56pF, 50V |
| C21 | QEGB1AM-107 | E CAPACITOR | 100μF, 10V |
| C22 | QETC1JM-226 | E CAPACITOR | 22μF, 63V |
| C23 | QEGB1EM-227 | E CAPACITOR | 220μF, 25V |
| C24 | QEGB1CM-687 | E CAPACITOR | 680μF, 16V |
| C25 | QEGB1AM-108 | E CAPACITOR | 1000μF, 10V |
| C26 | QETC1VM-336 | E CAPACITOR | 33μF, 35V |
| C27 | QFV11HJ-563 | F CAPACITOR | 0.056μF, 50V |
| C29 | QFV11HJ-274 | F CAPACITOR | 0.27μF, 50V |
| C30 | QFV11HJ-104 | F CAPACITOR | 0.1μF, 50V |
| C31 | QETC1EM-227 | E CAPACITOR | 220μF, 25V |
| C32 | QETB1CM-108 | E CAPACITOR | 1000μF, 16V |
| C33 | QETB1AM-108 | E CAPACITOR | 1000μF, 10V |
| C34 | QETC1VM-336 | E CAPACITOR | 33μF, 35V |
| C35 | QETC1CM-107 | E CAPACITOR | 100μF, 16V |
| C36 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|----------------|----------------------------|-------------|
| C37 | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C42 | QFLA1HJ-102Z | M CAPACITOR | 0.001μF,50V |
| C43 | QFLA1HJ-102Z | M CAPACITOR | 0.001μF,50V |
| C44 | QETC1EM-476 | E CAPACITOR | 47μF,25V |
| C45 | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C46 | QETC1EM-476 | E CAPACITOR | 47μF,25V |
| C47 | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| L1 | PELN0696-330KZ | COIL | 33μH |
| L2 | PELN0696-330KZ | COIL | 33μH |
| L3 | PELN0696-330KZ | COIL | 33μH |
| △ PC1 | PS2501-1 | PHOTO COUPLER | |
| △ PC2 | PS2501-1 | PHOTO COUPLER | |
| △ T1 | PELN0823 | SW TRANS | |
| △ BKT1 | PQ46004 | BRACKET,REG | |
| ETH1 | PQ44695 | EARTH PLATE | |
| ETH2 | PQ46081-1-1 | EARTH PLATE | |
| △ FC1 | PEMC0965-Z | FUSE CLIP | |
| △ FC2 | PEMC0965-Z | FUSE CLIP | |
| △ HS1 | PQ46005 | HEAT SINK(1),Q1 | |
| △ HS2 | PQ46006 | HEAT SINK(2),D14 D15 Q4 Q5 | |
| HS3 | PQ46048 | PLATE,X3 REG Q4 Q5 D15 | |
| △ LF1 | PU61092 | LINE FILTER | |
| SCW1 | SDST3006Z | SCREW,X4 | |
| SCW2 | SDST3008Z | SCREW,X4 | |
| SCW3 | SPSG3008M | SCREW,X2 | |
| SLD1 | PQ21503-1-2 | SHIELD CASE,REG | |
| SLD2 | PQ34638 | SHIELD COVER,REG | |
| SPC1 | PU60010-2 | SPACER | |
| CN1 | PU60910-104 | WIRE TRAP | |
| CN2 | PU59555-103 | CONNECTOR | |
| CN3 | PU60910-104 | WIRE TRAP | |
| CN4 | PU60910-104 | WIRE TRAP | |
| CN5 | PU60910-105 | CONNECTOR | |
| △ CN101 | PEMC0973-02 | AC INLET | |
| △ F1 | QMF51N2-1R0J1 | FUSE | T1.0A |

MAIN BOARD ASSEMBLY <03>

| | | |
|-------|-------------|-------------------------------|
| PWBA1 | PB10747A-01 | MAIN BOARD ASSEMBLY,HR-S6900U |
| | PB10747B-01 | MAIN BOARD ASSEMBLY,HR-S4900U |
| CL1 | PU59311-4 | WIRE CLAMP,X3 |
| JA1 | PEMC0864-02 | S JACK,S IN |
| JA2 | PEMC0864 | S JACK,S OUT |
| JA3 | PEMC0893-04 | PIN JACK,V IN |
| JA4 | PU60833-4 | PIN JACK,V OUT |
| JA5 | PEMC0893-02 | PIN JACK,A IN(R) |
| JA6 | PEMC0893-03 | PIN JACK,A IN(L) |
| JA7 | PU60833-2 | PIN JACK,A OUT(R) |
| JA8 | PU60833-3 | PIN JACK,A OUT(L) |
| JA9 | PU61012 | MINI JACK,R.A.EDIT |
| SCW1 | SDSF3010Z | SCREW,X2 |
| SLD1 | PU61069-1-2 | SHIELD CASE |
| SLD2 | PU61070 | SHIELD COVER |
| SLD3 | PU61071 | SHIELD PLATE |
| △ TB1 | PQ11491-2 | TERMINAL BOARD (1) |
| JA10 | PU61012 | MINI JACK,COMPULINK |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|-----------------------|--------------------|------------------------|-------------|
| - FMA AUDIO SECTION - | | | |
| IC1 | XRA15218N | IC | |
| IC3 | BA6138 | IC | |
| IC4 | XRA15218 | IC | |
| Q1 | 2SC3311A | TRANSISTOR | |
| Q2 | 2SC3311A | TRANSISTOR | |
| Q3 | 2SC4081(RS) | TRANSISTOR | |
| Q4 | 2SC4081(RS) | TRANSISTOR | |
| Q5 | 2SC1740S(RS) | TRANSISTOR | |
| | or 2SC3199(YG)-TJK | TRANSISTOR | |
| Q6 | 2SC1740S(RS) | TRANSISTOR | |
| | or 2SC3199(YG)-TJK | TRANSISTOR | |
| Q7 | DTA114EU | TRANSISTOR | |
| D2 | MTZ12CT-77 | ZENER DIODE | |
| R1 | QRSA08J-122YN | RESISTOR | 1.2KΩ,1/10W |
| R2 | QRSA08J-101YN | RESISTOR | 100Ω,1/10W |
| R3 | QRSA08J-331YN | RESISTOR | 330Ω,1/10W |
| R4 | QRSA08J-393YN | RESISTOR | 39KΩ,1/10W |
| R5 | QRD161J-393 | RESISTOR | 39KΩ,1/6W |
| R6 | QRSA08J-393YN | RESISTOR | 39KΩ,1/10W |
| R7 | QRSA08J-393YN | RESISTOR | 39KΩ,1/10W |
| R8 | QRSA08J-183YN | RESISTOR | 18KΩ,1/10W |
| R9 | QRSA08J-183YN | RESISTOR | 18KΩ,1/10W |
| R10 | QRSA08J-183YN | RESISTOR | 18KΩ,1/10W |
| R11 | QRSA08J-183YN | RESISTOR | 18KΩ,1/10W |
| R12 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| R13 | QRSA08J-222YN | RESISTOR | 2.2KΩ,1/10W |
| R14 | QRSA08J-182YN | RESISTOR | 1.8KΩ,1/10W |
| R15 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R16 | QRSA08J-331YN | RESISTOR | 330Ω,1/10W |
| R17 | QRSA08J-0R0Y | RESISTOR | 0Ω,1/10W |
| R18 | QRD161J-102 | RESISTOR | 1KΩ,1/6W |
| R19 | QRD161J-102 | RESISTOR | 1KΩ,1/6W |
| R20 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R21 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R22 | QRSA08J-122YN | RESISTOR | 1.2KΩ,1/10W |
| R23 | QRSA08J-331YN | RESISTOR | 330Ω,1/10W |
| R24 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R25 | QRSA08J-562YN | RESISTOR | 5.6KΩ,1/10W |
| R26 | QRSA08J-122YN | RESISTOR | 1.2KΩ,1/10W |
| R27 | QRSA08J-331YN | RESISTOR | 330Ω,1/10W |
| R28 | QRSA08J-473YN | RESISTOR | 47KΩ,1/10W |
| R29 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| R30 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R31 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R32 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| R33 | QRSA08J-473YN | RESISTOR | 47KΩ,1/10W |
| R34 | QRSA08J-331YN | RESISTOR | 330Ω,1/10W |
| R35 | QRSA08J-122YN | RESISTOR | 1.2KΩ,1/10W |
| R36 | QRSA08J-562YN | RESISTOR | 5.6KΩ,1/10W |
| R37 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R38 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R39 | QRSA08J-122YN | RESISTOR | 1.2KΩ,1/10W |
| R50 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R51 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R52 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10W |
| R53 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W |
| R54 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W |
| R55 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10W |
| R56 | QRSA08J-0R0Y | RESISTOR | 0Ω,1/10W |
| R57 | QRSA08J-0R0Y | RESISTOR | 0Ω,1/10W |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | | #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------------------|----------------|-------------------------|-------------|------------|---------------|------------------------|--------------|
| R60 | QRD161J-104 | RESISTOR | 100KΩ,1/6W | R101 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10V |
| R61 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W | R102 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10V |
| R62 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W | R103 | QRSA08J-821YN | RESISTOR | 820Ω,1/10V |
| R63 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W | R104 | QRSA08J-271YN | RESISTOR | 270Ω,1/10V |
| R64 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W | R105 | QRSA08J-274YN | RESISTOR | 270KΩ,1/10V |
| R65 | QRSA08J-682YN | RESISTOR | 6.8KΩ,1/10W | R106 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| R66 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W | R107 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| R67 | QRSA08J-682YN | RESISTOR | 6.8KΩ,1/10W | R108 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R68 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10W | R109 | QRSA08J-475YN | RESISTOR | 4.7MΩ,1/10V |
| R69 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10W | R110 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| C1 | QETC1CM-476 | E CAPACITOR | 47μF,16V | R111 | QRSA08J-332YN | RESISTOR | 3.3KΩ,1/10V |
| C2 | QETC1AM-476 | E CAPACITOR | 47μF,10V | R112 | QRD161J-103 | RESISTOR | 10KΩ,1/6V |
| C4 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R113 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| C5 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R114 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| C6 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R115 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| C7 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R116 | QRSA08J-153YN | RESISTOR | 15KΩ,1/10V |
| C9 | QETC1AM-476 | E CAPACITOR | 47μF,10V | R117 | QRSA08J-821YN | RESISTOR | 820Ω,1/10V |
| C10 | QETC1AM-476 | E CAPACITOR | 47μF,10V | R118 | QRSA08J-330YN | RESISTOR | 33Ω,1/10V |
| C16 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V | R119 | QRSA08J-0R0Y | RESISTOR | 0Ω,1/10V |
| C17 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V | R120 | QRSA08J-392YN | RESISTOR | 3.9KΩ,1/10V |
| C18 | QETC1AM-476 | E CAPACITOR | 47μF,10V | R121 | QRSA08J-221YN | RESISTOR | 220Ω,1/10V |
| C20 | QETC1HM-105 | E CAPACITOR | 1μF,50V | R122 | QRD161J-332 | RESISTOR | 3.3KΩ,1/6V |
| C21 | QETC1HM-225 | E CAPACITOR | 2.2μF,50V | R123 | QRSA08J-272YN | RESISTOR | 2.7KΩ,1/10V |
| C22 | QETC1HM-225 | E CAPACITOR | 2.2μF,50V | R124 | QRSA08J-183YN | RESISTOR | 18KΩ,1/10V |
| C23 | QETC1AM-107 | E CAPACITOR | 100μF,10V | R125 | QRD161J-682 | RESISTOR | 6.8KΩ,1/6V |
| C24 | QETC1AM-107 | E CAPACITOR | 100μF,10V | R126 | QRD161J-223 | RESISTOR | 22KΩ,1/6V |
| C25 | QETC1HM-225 | E CAPACITOR | 2.2μF,50V | R127 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| C26 | QETC1HM-225 | E CAPACITOR | 2.2μF,50V | R128 | QRD161J-100 | RESISTOR | 10Ω,1/6V |
| C27 | QETC1HM-105 | E CAPACITOR | 1μF,50V | R129 | QVPA606-473Z | V RESISTOR,BIAS | |
| C29 | QETC1AM-476 | E CAPACITOR | 47μF,10V | R130 | QRSA08J-3R9YN | RESISTOR | 3.9Ω,1/10V |
| C30 | QETC1CM-476 | E CAPACITOR | 47μF,16V | R131 | QRSA08J-273YN | RESISTOR | 27KΩ,1/10V |
| C39 | QETC1CM-475 | E CAPACITOR | 4.7μF,16V | R132 | QRSA08J-151YN | RESISTOR | 150Ω,1/10V |
| C40 | QETC1CM-475 | E CAPACITOR | 4.7μF,16V | R133 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| C41 | QETC1CM-476 | E CAPACITOR | 47μF,16V | R134 | QRSA08J-181YN | RESISTOR | 180Ω,1/10V |
| C42 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R135 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10V |
| C43 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R136 | QRSA08J-6R8YN | RESISTOR | 6.8Ω,1/10V |
| C44 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R137 | QRSA08J-0R0Y | RESISTOR | 0Ω,1/10V |
| C45 | QETC1CM-106 | E CAPACITOR | 10μF,16V | C101 | QCYA1HK-223 | CAPACITOR | 0.022μF,50V |
| C46 | QETC1CM-106 | E CAPACITOR | 10μF,16V | C102 | QCSA1HJ-821 | CAPACITOR | 820pF,50V |
| C47 | QETC1CM-106 | E CAPACITOR | 10μF,16V | C103 | QCYA1HK-222 | CAPACITOR | 0.0022μF,50V |
| L1 | PELN0530-101JZ | COIL | 100μH | C104 | QETC1HM-334 | E CAPACITOR | 0.33μF,50V |
| CN1 | PEMC0915-008 | FFC CONNECTOR | | C105 | PU60550-105 | E CAPACITOR | 1μF |
| CN2 | PEMC0915-004 | FFC CONNECTOR,HR-S6900U | | C106 | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| CN3 | PU59555-3 | CONNECTOR | | C107 | QFLC1HJ-123Z | M CAPACITOR | 0.012μF,50V |
| CN4 | PEMC0915-005 | FFC CONNECTOR | | C108 | QETC1HM-105 | E CAPACITOR | 1μF,50V |
| CN5 | PU59555-3 | CONNECTOR | | C109 | QETC1HM-335 | E CAPACITOR | 3.3μF,50V |
| - NORM AUDIO SECTION - | | | | C110 | QFLC1HJ-822Z | M CAPACITOR | 0.0082μF,50V |
| IC101 | LA7295 | IC | | C111 | QFLC1HJ-393Z | M CAPACITOR | 0.039μF,50V |
| Q101 | DTC114WU | TRANSISTOR | | C112 | QFLC1HJ-333Z | M CAPACITOR | 0.033μF,50V |
| Q102 | DTC114WU | TRANSISTOR | | C113 | QFLC1HJ-183Z | M CAPACITOR | 0.018μF,50V |
| Q103 | DTC114WU | TRANSISTOR | | C114 | QETC1HM-105 | E CAPACITOR | 1μF,50V |
| Q104 | DTA114EU | TRANSISTOR | | C115 | QFLC1HJ-153Z | M CAPACITOR | 0.015μF,50V |
| Q105 | DTA114EU | TRANSISTOR | | C116 | QETC1CM-476 | E CAPACITOR | 47μF,16V |
| Q106 | 2SC4081(RS) | TRANSISTOR | | C117 | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| Q107 | 2SC4081(RS) | TRANSISTOR | | C118 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V |
| Q108 | DTA144ES | TRANSISTOR | | C119 | QCYA1HK-222 | CAPACITOR | 0.0022μF,50V |
| D101 | DAN202U | DIODE | | C120 | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| D102 | DAN202U | DIODE | | C121 | QFLC1HJ-223Z | M CAPACITOR | 0.022μF,50V |
| D103 | 1SS133 | DIODE | | C122 | QCSA1HJ-331 | CAPACITOR | 330pF,50V |
| D104 | 1SS133 | DIODE | | C123 | QCYA1HK-472 | CAPACITOR | 0.0047μF,50V |
| | | | | C124 | QCYA1HK-332 | CAPACITOR | 0.0033μF,50V |
| | | | | C125 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION |
|------------|--------------|-------------------------------|
| C126 | QETC1CM-106 | E CAPACITOR 10 μ F,16V |
| C127 | QFLC1HJ-333Z | M CAPACITOR 0.033 μ F,50V |
| C130 | QCVB1CN-103 | CAPACITOR 0.01 μ F,16V |
| L101 | PU58308-682J | COIL 6.8mH |
| △ T101 | PU60320 | OSC TRANSFORMER |
| △ T102 | PU60321 | OSC TRANSFORMER |
| CN101 | PU59555-4 | OSC TRANSFORMER,LC VCO |
| CN102 | PU59555-2 | CONNECTOR |

- VIDEO SECTION -

| | | |
|-------|---------------|-----------------|
| IC301 | JCP0033 | IC |
| IC302 | CXL5502P | IC |
| IC303 | MC74HC04AN | IC |
| | or TC74HC04AP | IC |
| Q203 | FMW2 | PAIR TRANSISTOR |
| Q204 | FMS2 | TRANSISTOR |
| Q205 | FMS1 | TRANSISTOR |
| Q206 | FMW2 | PAIR TRANSISTOR |
| Q207 | FMS2 | TRANSISTOR |
| Q208 | FMS1 | TRANSISTOR |
| Q211 | FMW2 | PAIR TRANSISTOR |
| Q212 | FMS2 | TRANSISTOR |
| Q213 | FMS1 | TRANSISTOR |
| Q221 | 2SC1740S(QRS) | TRANSISTOR |
| Q230 | DTC144EU | TRANSISTOR |
| Q232 | FMS1 | TRANSISTOR |
| Q233 | DTC144ES | TRANSISTOR |
| Q240 | 2SC4081(QRS) | TRANSISTOR |
| Q241 | 2SC4081(QRS) | TRANSISTOR |
| Q242 | 2SC1740S(QRS) | TRANSISTOR |
| Q243 | 2SA933S(RS) | TRANSISTOR |
| Q244 | 2SA933S(RS) | TRANSISTOR |
| Q245 | 2SA1576(RS) | TRANSISTOR |
| Q246 | 2SC4081(QRS) | TRANSISTOR |
| Q248 | 2SC1740S(QRS) | TRANSISTOR |
| Q301 | DTA124EU | TRANSISTOR |
| Q302 | DTC144ES | TRANSISTOR |
| Q303 | DTC144EU | TRANSISTOR |
| Q304 | DTC144WS | TRANSISTOR |
| Q305 | 2SA933S(RS) | TRANSISTOR |
| Q306 | 2SC4081(QRS) | TRANSISTOR |
| Q307 | 2SC4081(QRS) | TRANSISTOR |
| Q308 | 2SC1740S(QRS) | TRANSISTOR |
| Q309 | DTC144EU | TRANSISTOR |
| Q310 | 2SC1740S(QRS) | TRANSISTOR |
| Q313 | DTC144WS | TRANSISTOR |
| Q314 | DTC144WS | TRANSISTOR |
| Q316 | 2SA933S(RS) | TRANSISTOR |
| Q317 | 2SC4081(S) | TRANSISTOR |
| Q318 | 2SC1740S(S) | TRANSISTOR |
| Q329 | DTC144WU | TRANSISTOR |
| D204 | 1SS133 | DIODE |
| D210 | 1SS133 | DIODE |
| D211 | DAN202U | DIODE |
| D215 | 1SS133 | DIODE |
| D217 | 1SS133 | DIODE |
| D218 | 1SS133 | DIODE |
| D219 | DAP202U | DIODE |
| D220 | 1SS133 | DIODE |
| D221 | 1SS133 | DIODE |
| D301 | 1SS133 | DIODE |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION |
|------------|---------------|-------------------------------|
| D303 | 1SS133 | DIODE |
| D305 | DAN202U | DIODE |
| D306 | 1SS133 | DIODE |
| D313 | 1SS133 | DIODE |
| D314 | 1SS133 | DIODE |
| D316 | 1SS133 | DIODE |
| R201 | QRSA08J-750YN | RESISTOR 75 Ω ,1/10W |
| R202 | QRSA08J-750YN | RESISTOR 75 Ω ,1/10W |
| R205 | QRSA08J-750YN | RESISTOR 75 Ω ,1/10W |
| R207 | QRSA08J-750YN | RESISTOR 75 Ω ,1/10W |
| R217 | QRSA08J-821YN | RESISTOR 820 Ω ,1/10W |
| R218 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R220 | QRSA08J-0R0Y | RESISTOR 0 Ω ,1/10W |
| R221 | QRSA08J-0R0Y | RESISTOR 0 Ω ,1/10W |
| R224 | QRSA08J-182YN | RESISTOR 1.8K Ω ,1/10W |
| R225 | QRSA08J-0R0Y | RESISTOR 0 Ω ,1/10W |
| R235 | QRSA08J-471YN | RESISTOR 470 Ω ,1/10W |
| R236 | QRSA08J-122YN | RESISTOR 1.2K Ω ,1/10W |
| R237 | QRSA08J-471YN | RESISTOR 470 Ω ,1/10W |
| R238 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R239 | QRSA08J-224YN | RESISTOR 220K Ω ,1/10W |
| R240 | QRSA08J-181YN | RESISTOR 180 Ω ,1/10W |
| R241 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R242 | QRSA08J-473YN | RESISTOR 47K Ω ,1/10W |
| R243 | QRSA08J-183YN | RESISTOR 18K Ω ,1/10W |
| R244 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R245 | QRSA08J-681YN | RESISTOR 680 Ω ,1/10W |
| R247 | QVPA606-472Z | V RESISTOR,N PB Y LEVEL-2 |
| R249 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R250 | QRSA08J-473YN | RESISTOR 47K Ω ,1/10W |
| R257 | QRSA08J-183YN | RESISTOR 18K Ω ,1/10W |
| R258 | QRSA08J-183YN | RESISTOR 18K Ω ,1/10W |
| R261 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R262 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R263 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R264 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R270 | QRSA08J-750YN | RESISTOR 75 Ω ,1/10W |
| R271 | QRSA08J-750YN | RESISTOR 75 Ω ,1/10W |
| R272 | QRSA08J-202YN | RESISTOR 2K Ω ,1/10W |
| R273 | NRVA62D-153N | RESISTOR 15K Ω ,1/16W |
| R274 | QRSA08J-222YN | RESISTOR 2.2K Ω ,1/10W |
| R275 | NRVA62D-683N | RESISTOR 68K Ω ,1/16W |
| R276 | QRSA08J-163YN | RESISTOR 16K Ω ,1/10W |
| R280 | QRSA08J-911YN | RESISTOR 910 Ω ,1/10W |
| R281 | QRSA08J-182YN | RESISTOR 1.8K Ω ,1/10W |
| R283 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R284 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R285 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R286 | QRD161J-101 | RESISTOR 100 Ω ,1/6W |
| R291 | QRSA08J-0R0Y | RESISTOR 0 Ω ,1/10W |
| R292 | QRSA08J-391YN | RESISTOR 390 Ω ,1/10W |
| R301 | QRSA08J-103YN | RESISTOR 10K Ω ,1/10W |
| R302 | QRSA08J-392YN | RESISTOR 3.9K Ω ,1/10W |
| R303 | QVPA606-103Z | V RESISTOR,EE Y LEVEL |
| R304 | QRSA08J-103YN | RESISTOR 10K Ω ,1/10W |
| R305 | QRSA08J-473YN | RESISTOR 47K Ω ,1/10W |
| R306 | QRSA08J-473YN | RESISTOR 47K Ω ,1/10W |
| R307 | QRSA08J-101YN | RESISTOR 100 Ω ,1/10W |
| R308 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R309 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R310 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |
| R311 | QRSA08J-102YN | RESISTOR 1K Ω ,1/10W |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | | #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|--------------------------|--------------|------------|---------------|------------------------|---------------|
| R312 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W | C202 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R313 | QRSA08J-564YN | RESISTOR | 560KΩ, 1/10W | C203 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R314 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W | C204 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R315 | QRSA08J-562YN | RESISTOR | 5.6KΩ, 1/10W | C210 | QCSA1HJ-101 | CAPACITOR | 100pF, 50V |
| R316 | QRD161J-562 | RESISTOR | 5.6KΩ, 1/6W | C211 | QETC1HM-225 | E CAPACITOR | 2.2μF, 50V |
| R317 | QRSA08J-201YN | RESISTOR | 200Ω, 1/10W | C212 | QCFA1HZ-223 | CAPACITOR | 0.022μF, 50V |
| R318 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C213 | QCFA1HZ-223 | CAPACITOR | 0.022μF, 50V |
| R319 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C214 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R320 | QRD161J-152 | RESISTOR | 1.5KΩ, 1/6W | C230 | QETN0JM-108ZS | E CAPACITOR | 1000μF, 6.3V |
| R321 | QRD161J-331 | RESISTOR | 330Ω, 1/6W | C231 | QCFA1HZ-223 | CAPACITOR | 0.022μF, 50V |
| R322 | QVPA606-222Z | V RESISTOR, Y COMB PHASE | | C232 | QETN0JM-108ZS | E CAPACITOR | 1000μF, 6.3V |
| R323 | QRSA08J-221YN | RESISTOR | 220Ω, 1/10W | C233 | QCFA1HZ-223 | CAPACITOR | 0.022μF, 50V |
| R324 | QVPA606-102Z | V RESISTOR, Y COMB GAIN | | C235 | QCFA1HZ-104 | CAPACITOR | 0.1μF, 50V |
| R325 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C236 | QCFA1HZ-104 | CAPACITOR | 0.1μF, 50V |
| R327 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C237 | QCFA1HZ-223 | CAPACITOR | 0.022μF, 50V |
| R328 | QVPA606-152Z | V RESISTOR, C COMB PHASE | | C238 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| R329 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C239 | QETC1CM-337 | E CAPACITOR | 330μF, 16V |
| R330 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | C242 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R331 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | C248 | QCSA1HJ-150 | CAPACITOR | 15pF, 50V |
| R332 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W | C250 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R333 | QVPA606-102Z | V RESISTOR, C COMB GAIN | | C266 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R334 | QRD161J-223 | RESISTOR | 22KΩ, 1/6W | C267 | QCVB1CM-103 | CAPACITOR | 0.01μF, 16V |
| R335 | QRD161J-183 | RESISTOR | 18KΩ, 1/6W | C268 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R336 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C269 | QETC1EM-476 | E CAPACITOR | 47μF, 25V |
| R337 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C282 | QCVB1CN-103 | CAPACITOR | 0.01μF, 16V |
| R338 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C284 | QCVB1CN-103 | CAPACITOR | 0.01μF, 16V |
| R339 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W | C301 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R340 | QRSA08J-183YN | RESISTOR | 18KΩ, 1/10W | C302 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R341 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C303 | QCYA1HK-682 | CAPACITOR | 0.0068μF, 50V |
| R342 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C304 | QETC1HM-224 | E CAPACITOR | 0.22μF, 50V |
| R343 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C305 | QETC1HM-224 | E CAPACITOR | 0.22μF, 50V |
| R344 | ERT-D2FGL142S | THERMISTOR | | C306 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R346 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C307 | QETC1HM-224 | E CAPACITOR | 0.22μF, 50V |
| R347 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C308 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R348 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | C309 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R350 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C310 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V |
| R351 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C311 | QETC1HM-474 | E CAPACITOR | 0.47μF, 50V |
| R352 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C312 | QCFA1HZ-104 | CAPACITOR | 0.1μF, 50V |
| R353 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C313 | QETC1HM-474 | E CAPACITOR | 0.47μF, 50V |
| R355 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C314 | QETC1HM-474 | E CAPACITOR | 0.47μF, 50V |
| R356 | QRSA08J-202YN | RESISTOR | 2KΩ, 1/10W | C315 | QETC1HM-474 | E CAPACITOR | 0.47μF, 50V |
| R357 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | C316 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R358 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C317 | QCTA1UJ-820 | CAPACITOR | 82pF, 16V |
| R360 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W | C318 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R361 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C319 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R362 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C320 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R363 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C323 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R364 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C324 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R365 | QRSA08J-105YN | RESISTOR | 1MΩ, 1/10W | C325 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R366 | QRSA08J-562YN | RESISTOR | 5.6KΩ, 1/10W | C326 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V |
| R367 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W | C327 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R368 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W | C328 | QCTA1CH-330 | CAPACITOR | 33pF, 16V |
| R369 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W | C329 | QCTA1CH-180 | CAPACITOR | 18pF, 16V |
| R370 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W | C330 | QCTA1CH-820 | CAPACITOR | 82pF, 16V |
| R372 | QRSA08J-202YN | RESISTOR | 2KΩ, 1/10W | C331 | QCTA1CH-820 | CAPACITOR | 82pF, 16V |
| R373 | QRSA08J-823YN | RESISTOR | 82KΩ, 1/10W | C332 | QCTA1CH-330 | CAPACITOR | 33pF, 16V |
| R374 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W | C333 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R375 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C334 | QCTA1CH-180 | CAPACITOR | 18pF, 16V |
| R376 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W | C335 | QCTA1CH-820 | CAPACITOR | 82pF, 16V |
| R377 | QRD161J-473 | RESISTOR | 47KΩ, 1/6W | C336 | QCTA1CH-820 | CAPACITOR | 82pF, 16V |
| R383 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W | C337 | QCTA1CH-200 | CAPACITOR | 20pF, 16V |
| C201 | QETC1CM-106 | E CAPACITOR | 10μF, 16V | C338 | QCTA1CH-200 | CAPACITOR | 20pF, 16V |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | | #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|-------------------|---------------|------------------------|-------------|------------|---------------|------------------------|-------------|
| C339 | QCTA1CH-101 | CAPACITOR | 100pF,16V | R403 | QRSA08J-105YN | RESISTOR | 1MΩ,1/10W |
| C343 | QETC1EM-335 | E CAPACITOR | 3.3μF,25V | R405 | QRSA08J-224YN | RESISTOR | 220KΩ,1/10W |
| C344 | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V | R406 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| C345 | QCC11CJ-104 | CAPACITOR | 0.1μF,16V | R407 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| C346 | QETC1CM-336 | E CAPACITOR | 33μF,16V | R409 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| C347 | QETC1HM-105 | E CAPACITOR | 1μF,50V | R410 | QRSA08J-683YN | RESISTOR | 68KΩ,1/10W |
| C348 | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V | R411 | QRSA08J-105YN | RESISTOR | 1MΩ,1/10W |
| C349 | QCSA1HJ-101 | CAPACITOR | 100pF,50V | R412 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W |
| C350 | QETC1CM-106 | E CAPACITOR | 10μF,16V | R413 | QRD161J-222 | RESISTOR | 2.2KΩ,1/6W |
| C351 | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V | R414 | QRSA08J-272YN | RESISTOR | 2.7KΩ,1/10W |
| C352 | QCSA1HJ-5R0 | CAPACITOR | 5pF,50V | R415 | QRSA08J-123YN | RESISTOR | 12KΩ,1/10W |
| C353 | QCSA1HJ-5R0 | CAPACITOR | 5pF,50V | R416 | QRSA08J-123YN | RESISTOR | 12KΩ,1/10W |
| C354 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V | R417 | QRSA08J-473YN | RESISTOR | 47KΩ,1/10W |
| C355 | QETC1CM-476 | E CAPACITOR | 47μF,16V | R418 | QRSA08J-105YN | RESISTOR | 1MΩ,1/10W |
| C356 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V | R419 | QRSA08J-473YN | RESISTOR | 47KΩ,1/10W |
| C357 | QETC0JM-107 | E CAPACITOR | 100μF,6.3V | R421 | QRSA08J-184YN | RESISTOR | 180KΩ,1/10W |
| C358 | QETC1HM-335 | E CAPACITOR | 3.3μF,50V | R423 | QRSA08J-105YN | RESISTOR | 1MΩ,1/10W |
| C359 | QCSA1HJ-102 | CAPACITOR | 0.001μF,50V | R424 | QRSA08J-393YN | RESISTOR | 39KΩ,1/10W |
| L202 | PU48530-101K | COIL | 100μH | R428 | QRSA08J-824YN | RESISTOR | 820KΩ,1/10W |
| L203 | PU59988-820J | COIL | 82μH | R429 | QRSA08J-682YN | RESISTOR | 6.8KΩ,1/10W |
| L254 | PU48530-101K | COIL | 100μH | R430 | QRSA08J-105YN | RESISTOR | 1MΩ,1/10W |
| L301 | PU48530-101K | COIL | 100μH | R431 | QRSA08J-124YN | RESISTOR | 120KΩ,1/10W |
| L302 | PU48530-101K | COIL | 100μH | R432 | QRD161J-103 | RESISTOR | 10KΩ,1/6W |
| L304 | PU59988-101J | COIL | 100μH | R436 | QRD161J-102 | RESISTOR | 1KΩ,1/6W |
| L305 | PU59988-180J | COIL | 18μH | R438 | QRSA08J-104YN | RESISTOR | 100KΩ,1/10W |
| L306 | PU59988-101J | COIL | 100μH | R440 | QRSA08J-561YN | RESISTOR | 560Ω,1/10W |
| L307 | PU59988-180J | COIL | 18μH | R451 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| L309 | PU48530-101K | COIL | 100μH | R452 | QRSA08J-332YN | RESISTOR | 3.3KΩ,1/10W |
| L310 | PU48530-101K | COIL | 100μH | R453 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| L311 | PU59988-330J | COIL | 33μH | R454 | QRSA08J-152YN | RESISTOR | 1.5KΩ,1/10W |
| L313 | PU59988-101J | COIL | 100μH | R455 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| L314 | PU59988-101J | COIL | 100μH | R456 | QRSA08J-154YN | RESISTOR | 150KΩ,1/10W |
| LPF302 | PU61053 | LOW PASS FILTER | | R485 | QRD161J-273 | RESISTOR | 27KΩ,1/6W |
| LPF303 | PU61052 | LOW PASS FILTER | | C401 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V |
| BPF301 | PELN0893 | BAND PASS FILTER | | C402 | QER61AM-226 | E CAPACITOR | 22μF,10V |
| CN201 | PU59555-6 | CONNECTOR | | C403 | QER61AM-226 | E CAPACITOR | 22μF,10V |
| CN205 | PU59555-2 | CONNECTOR | | C404 | QCSA1HJ-101 | CAPACITOR | 100pF,50V |
| CN301 | PEMC0915-009 | FFC CONNECTOR | | C405 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V |
| CN302 | PEMC0915-015 | FFC CONNECTOR | | C406 | QCYA1HK-223 | CAPACITOR | 0.022μF,50V |
| CN303 | PU60910-4 | CONNECTOR | | C407 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V |
| CN304 | PEMC0714-009 | CONNECTOR | | C408 | QCYA1EK-563 | CAPACITOR | 0.056μF,25V |
| CN305 | PEMC0714-010 | CONNECTOR | | C409 | QCYA1HK-102 | CAPACITOR | 0.001μF,50V |
| CN306 | PEMC0714-009 | CONNECTOR | | C410 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| △ CP201 | ICP-N10 | CIRCUIT PROTECTOR | | C411 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| - SERVO SECTION - | | | | C412 | QER61CM-106 | E CAPACITOR | 10μF,16V |
| IC401 | HD49780NT | IC | | C413 | QCC31CJ-104 | CAPACITOR | 0.1μF,16V |
| IC451 | BA7039 | IC | | C414 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| | or XRA7039 | IC | | C415 | QER61EM-475 | E CAPACITOR | 4.7μF,25V |
| IC471 | UPD4161BC | IC | | C416 | QER61EM-475 | E CAPACITOR | 4.7μF,25V |
| IC472 | UPC358C | IC | | C417 | QER61CM-106 | E CAPACITOR | 10μF,16V |
| | or LM358P | IC | | C418 | QER61CM-106 | E CAPACITOR | 10μF,16V |
| | or LM358N | IC | | C419 | QCYA1EK-473 | CAPACITOR | 0.047μF,25V |
| IC473 | MC14011BCP | IC | | C420 | QENC1HM-105 | NP E CAPACITOR | 1μF,50V |
| Q403 | DTC143TU | TRANSISTOR | | C421 | QCSA1HJ-101 | CAPACITOR | 100pF,50V |
| D401 | 1SS133 | DIODE | | C423 | QER61CM-106 | E CAPACITOR | 10μF,16V |
| D402 | 1SS133 | DIODE | | C424 | QFV11HJ-103 | F CAPACITOR | 0.01μF,50V |
| D403 | 1SS133 | DIODE | | C451 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| D477 | 1SS133 | DIODE | | C452 | QCYA1EK-104 | CAPACITOR | 0.1μF,25V |
| R401 | QRSA08J-561YN | RESISTOR | 560Ω,1/10W | C453 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| R402 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W | C454 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| | | | | C455 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |
| | | | | C456 | QCYA1EK-103 | CAPACITOR | 0.01μF,25V |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION | |
|----|---------|--------------|------------------------|-------------------|
| | C457 | QCYA1EK-103 | CAPACITOR | 0.01 μ F,25V |
| | C458 | QER61AM-226 | E CAPACITOR | 22 μ F,10V |
| | C459 | QFV11HJ-563 | F CAPACITOR | 0.056 μ F,50V |
| | L451 | PU59152-270J | COIL | 27 μ H |
| | CN401 | PU59555-3 | CONNECTOR | |
| | CN402 | PEMC0915-004 | FFC CONNECTOR | |
| △ | CP401 | ICP-N15 | CIRCUIT PROTECTOR | |

- SYSCON SECTION -

| | | | |
|-------|--------------------|--------------|----------------------|
| IC601 | HD6433927A29F | QFP IC (MCU) | |
| IC602 | CAT35C102P | IC | |
| | or S-2924A110G | IC | |
| | or S-2924A110M | IC | |
| IC603 | S-80728AN | IC | |
| IC604 | M50253P | IC | |
| IC605 | TC7S14F | IC | |
| Q601 | DTC124ES | TRANSISTOR | |
| Q602 | DTC114TS | TRANSISTOR | |
| Q603 | DTC124EU | TRANSISTOR | |
| Q604 | DTC124EU | TRANSISTOR | |
| Q605 | DTC124ES | TRANSISTOR | |
| Q606 | DTC124ES | TRANSISTOR | |
| Q607 | DTC124EU | TRANSISTOR | |
| Q608 | DTC124EU | TRANSISTOR | |
| Q609 | 2SB1256 | TRANSISTOR | |
| Q610 | 2SC3311A(RS) | TRANSISTOR | |
| | or 2SC536SPA(FG) | TRANSISTOR | |
| | or 2SC1740S(RS) | TRANSISTOR | |
| | or 2SC3199(GB)-TJK | TRANSISTOR | |
| Q611 | DTC124EU | TRANSISTOR | |
| Q612 | DTA124EU | TRANSISTOR | |
| D601 | RB721Q | DIODE | |
| D602 | RB721Q | DIODE | |
| D603 | 11ES2 | DIODE | |
| D604 | 11ES2 | DIODE | |
| D605 | 1SS133 | DIODE | |
| D606 | 1SS133 | DIODE | |
| D607 | 1SS133 | DIODE | |
| D608 | 1SS133 | DIODE | |
| D609 | 1SS133 | DIODE | |
| D610 | 1SR153-200-T2 | FR DIODE | |
| D612 | 1SS133 | DIODE | |
| D613 | 11ES2 | DIODE | |
| R601 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6W |
| R602 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10W |
| R603 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10W |
| R604 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10W |
| R605 | QRSA08J-105YN | RESISTOR | 1M Ω ,1/10W |
| R606 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10W |
| R607 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10W |
| R608 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6W |
| R611 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6W |
| R612 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10W |
| R613 | QRD161J-102 | RESISTOR | 1K Ω ,1/6W |
| R614 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6W |
| R615 | QRD161J-104 | RESISTOR | 100K Ω ,1/6W |
| R617 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10W |
| R618 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6W |
| R621 | QRSA08J-103YN | RESISTOR | 10K Ω ,1/10W |
| R623 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10W |
| R624 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6W |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION | |
|----|---------|---------------|------------------------|------------------------------|
| | R625 | QRSA08J-0R0Y | RESISTOR | 0 Ω ,1/10 Ω |
| | R627 | QRSA08J-0R0Y | RESISTOR | 0 Ω ,1/10 Ω |
| | R628 | QRD161J-102 | RESISTOR | 1K Ω ,1/6 Ω |
| | R629 | QRD161J-102 | RESISTOR | 1K Ω ,1/6 Ω |
| | R630 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R631 | QRD161J-471 | RESISTOR | 470 Ω ,1/6 Ω |
| | R632 | QRD161J-333 | RESISTOR | 33K Ω ,1/6 Ω |
| | R634 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R635 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R636 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R637 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R638 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R639 | QRD161J-102 | RESISTOR | 1K Ω ,1/6 Ω |
| | R640 | QRD161J-222 | RESISTOR | 2.2K Ω ,1/6 Ω |
| | R641 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R642 | QRSA08J-0R0Y | RESISTOR | 0 Ω ,1/10 Ω |
| | R643 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R644 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R645 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R646 | QRD161J-332 | RESISTOR | 3.3K Ω ,1/6 Ω |
| | R647 | QRD161J-332 | RESISTOR | 3.3K Ω ,1/6 Ω |
| | R648 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10 Ω |
| | R649 | QRSA08J-0R0Y | RESISTOR | 0 Ω ,1/10 Ω |
| | R650 | QRSA08J-0R0Y | RESISTOR | 0 Ω ,1/10 Ω |
| | R652 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R654 | QRSA08J-272YN | RESISTOR | 2.7K Ω ,1/10 Ω |
| | R655 | QRSA08J-104YN | RESISTOR | 100K Ω ,1/10 Ω |
| | R656 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R657 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R658 | QRD161J-472 | RESISTOR | 4.7K Ω ,1/6 Ω |
| | R659 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R660 | QRSA08J-0R0Y | RESISTOR | 0 Ω ,1/10 Ω |
| | R661 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R662 | QRSA08J-683YN | RESISTOR | 68K Ω ,1/10 Ω |
| | R663 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10 Ω |
| | R664 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10 Ω |
| | R665 | QRD161J-102 | RESISTOR | 1K Ω ,1/6 Ω |
| | R666 | QRD161J-224 | RESISTOR | 220K Ω ,1/6 Ω |
| | R667 | QRD161J-104 | RESISTOR | 100K Ω ,1/6 Ω |
| | R668 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R670 | QRSA08J-303YN | RESISTOR | 30K Ω ,1/10 Ω |
| | R671 | QRD161J-563 | RESISTOR | 56K Ω ,1/6 Ω |
| | R672 | QRSA08J-333YN | RESISTOR | 33K Ω ,1/10 Ω |
| | R674 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R675 | QRSA08J-104YN | RESISTOR | 100K Ω ,1/10 Ω |
| | R676 | QRD161J-104 | RESISTOR | 100K Ω ,1/6 Ω |
| | R677 | QRD161J-103 | RESISTOR | 10K Ω ,1/6 Ω |
| | R678 | QRD161J-103 | RESISTOR | 10K Ω ,1/6 Ω |
| | R679 | QRD161J-103 | RESISTOR | 10K Ω ,1/6 Ω |
| | R680 | QRD161J-103 | RESISTOR | 10K Ω ,1/6 Ω |
| | R681 | QRSA08J-222YN | RESISTOR | 2.2K Ω ,1/10 Ω |
| | R682 | QRSA08J-472YN | RESISTOR | 4.7K Ω ,1/10 Ω |
| | R684 | QRSA08J-103YN | RESISTOR | 10K Ω ,1/10 Ω |
| | R685 | QRSA08J-104YN | RESISTOR | 100K Ω ,1/10 Ω |
| | R686 | QRSA08J-221YN | RESISTOR | 220 Ω ,1/10 Ω |
| | R687 | QRSA08J-151YN | RESISTOR | 150 Ω ,1/10 Ω |
| | R688 | QRSA08J-102YN | RESISTOR | 1K Ω ,1/10 Ω |
| | R689 | QRSA08J-471YN | RESISTOR | 470 Ω ,1/10 Ω |
| | R690 | QRSA08J-103YN | RESISTOR | 10K Ω ,1/10 Ω |
| | R691 | QRSA08J-471YN | RESISTOR | 470 Ω ,1/10 Ω |
| | C601 | QCYA1EJ-103 | CAPACITOR | 0.01 μ F,25 |
| | C602 | QER61CM-106 | E CAPACITOR | 10 μ F,16 |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|----------------|----------------------------|-------------|
| C603 | QCYA1EJ-103 | CAPACITOR | 0.01μF,25V |
| C605 | QEK60JM-107 | E CAPACITOR | 100μF,6.3V |
| C606 | QEA40HZ-104 | EDL CAPACITOR | 0.1F,5.5V |
| C607 | QCYA1EJ-103 | CAPACITOR | 0.01μF,25V |
| C608 | QER61EM-336 | E CAPACITOR | 33μF,25V |
| C609 | QCYA1EJ-103 | CAPACITOR | 0.01μF,25V |
| C613 | QCSA1HJ-101 | CAPACITOR | 100pF,50V |
| C614 | QCSA1HJ-101 | CAPACITOR | 100pF,50V |
| C616 | QCSA1HJ-270 | CAPACITOR | 27pF,50V |
| C618 | QAT3120-450Z | TRIM CAPACITOR,TIMER CLOCK | 45pF |
| C621 | QEK61EM-476 | E CAPACITOR | 47μF,25V |
| C622 | QCC11CJ-104 | CAPACITOR | 0.1μF,16V |
| C623 | QCSA1HJ-470 | CAPACITOR | 47pF,50V |
| C624 | QCSA1HJ-470 | CAPACITOR | 47pF,50V |
| C626 | QCB1HJ-102 | CAPACITOR | 0.001μF,50V |
| C627 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V |
| C628 | QCSA1HK-220 | CAPACITOR | 22pF,50V |
| L601 | PELN0530-101JZ | COIL | 100μH |
| △ CF601 | PEVB0497 | RESONATOR | |
| △ X601 | PEVB0422 | CRYSTAL RESONATOR | |
| CN601 | PEMC0915-016 | FFC CONNECTOR | |
| CN602 | PU60910-5 | CONNECTOR | |
| CN603 | PEMC0915-008 | FFC CONNECTOR | |
| CN701 | PEMC0915-011 | FFC CONNECTOR | |

VIDEO BOARD ASSEMBLY <05>

| | | |
|-------|----------------|----------------------|
| PWBA1 | PB10778B-01 | VIDEO BOARD ASSEMBLY |
| IC1 | PB20577B-02-SS | Y.MOD ASSY |
| IC101 | JCP0040-HT | IC |
| IC202 | TL8825P | IC |
| Q1 | 2SA1576(RS) | TRANSISTOR |
| Q2 | DTC144WU | TRANSISTOR |
| Q3 | DTC124EU | CHIP D TRANSISTOR |
| Q4 | DTC144WU | TRANSISTOR |
| Q5 | DTC144WU | TRANSISTOR |
| Q7 | DTC144WU | TRANSISTOR |
| Q15 | 2SC4081(QRS) | TRANSISTOR |
| Q101 | 2SC4081(QRS) | TRANSISTOR |
| Q102 | 2SC4081(S) | TRANSISTOR |
| Q103 | DTC124EU | CHIP D TRANSISTOR |
| Q104 | 2SA1576(RS) | TRANSISTOR |
| Q105 | 2SA1576(RS) | TRANSISTOR |
| Q106 | 2SC4081(QRS) | TRANSISTOR |
| Q107 | DTC144WU | TRANSISTOR |
| Q109 | 2SC4081(QRS) | TRANSISTOR |
| Q110 | 2SC4081(QRS) | TRANSISTOR |
| Q111 | 2SC4081(QRS) | TRANSISTOR |
| Q112 | DTC144EU | TRANSISTOR |
| Q113 | 2SC4081(QRS) | TRANSISTOR |
| Q116 | 2SC4081(QRS) | TRANSISTOR |
| Q205 | 2SC4081(QRS) | TRANSISTOR |
| Q206 | 2SA1576(RS) | TRANSISTOR |
| Q208 | 2SA1576(RS) | TRANSISTOR |
| Q209 | 2SC4081(QRS) | TRANSISTOR |
| Q210 | 2SC4081(QRS) | TRANSISTOR |
| Q211 | 2SC4081(QRS) | TRANSISTOR |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|-----------------------------|-------------|
| Q212 | 2SC4081(QRS) | TRANSISTOR | |
| Q213 | 2SC4081(QRS) | TRANSISTOR | |
| Q214 | 2SA1576(RS) | TRANSISTOR | |
| Q215 | 2SA1532(BC) | TRANSISTOR | |
| D1 | DAN202U | DIODE | |
| D2 | DAP202U | DIODE | |
| D4 | DAN202U | DIODE | |
| D8 | DAP202U | DIODE | |
| D101 | 1SS133 | DIODE | |
| D102 | DAP202U | DIODE | |
| D103 | DAN202U | DIODE | |
| D104 | 1SS133 | DIODE | |
| D105 | DAN202U | DIODE | |
| D106 | 1SS133 | DIODE | |
| D107 | 1SS133 | DIODE | |
| D110 | DAN202U | DIODE | |
| D111 | DAN202U | DIODE | |
| R1 | QRSA08J-221YN | RESISTOR | 220Ω,1/10W |
| R2 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R3 | QRSA08J-392YN | RESISTOR | 3.9KΩ,1/10W |
| R4 | QRSA08J-272YN | RESISTOR | 2.7KΩ,1/10W |
| R5 | QRSA08J-272YN | RESISTOR | 2.7KΩ,1/10W |
| R6 | QRSA08J-222YN | RESISTOR | 2.2KΩ,1/10W |
| R7 | QRD161J-272 | RESISTOR | 2.7KΩ,1/6W |
| R8 | QRSA08J-332YN | RESISTOR | 3.3KΩ,1/10W |
| R9 | QVZ3521-151Z | V RESISTOR,SUB EMPHA LEVEL | |
| R10 | QRSA08J-241YN | RESISTOR | 240Ω,1/10W |
| R11 | QRSA08J-242YN | RESISTOR | 2.4KΩ,1/10W |
| R12 | QRSA08J-391YN | RESISTOR | 390Ω,1/10W |
| R13 | QRSA08J-101YN | RESISTOR | 100Ω,1/10W |
| R14 | QRSA08J-152YN | RESISTOR | 1.5KΩ,1/10W |
| R15 | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10W |
| R16 | QRSA08J-224YN | RESISTOR | 220KΩ,1/10W |
| R17 | QRSA08J-561YN | RESISTOR | 560Ω,1/10W |
| R18 | QRSA08J-392YN | RESISTOR | 3.9KΩ,1/10W |
| R19 | QRSA08J-563YN | RESISTOR | 56KΩ,1/10W |
| R20 | QRSA08J-563YN | RESISTOR | 56KΩ,1/10W |
| R21 | QRSA08J-332YN | RESISTOR | 3.3KΩ,1/10W |
| R22 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10W |
| R23 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10W |
| R25 | QRSA08J-333YN | RESISTOR | 33KΩ,1/10W |
| R27 | QRSA08J-333YN | RESISTOR | 33KΩ,1/10W |
| R28 | QRSA08J-123YN | RESISTOR | 12KΩ,1/10W |
| R29 | QRSA08J-473YN | RESISTOR | 47KΩ,1/10W |
| R30 | QRSA08J-112YN | RESISTOR | 1.1KΩ,1/10W |
| R31 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R34 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10W |
| R35 | QVZ3521-223Z | V RESISTOR,S PB Y LEVEL | |
| R36 | QRSA08J-333YN | RESISTOR | 33KΩ,1/10W |
| R37 | QVZ3521-332Z | V RESISTOR,N PB Y LEVEL-1 | |
| R38 | QRSA08J-682YN | RESISTOR | 6.8KΩ,1/10W |
| R41 | QRSA08J-333YN | RESISTOR | 33KΩ,1/10W |
| R48 | QRSA08J-122YN | RESISTOR | 1.2KΩ,1/10W |
| R49 | QRSA08J-103YN | RESISTOR | 10KΩ,1/10W |
| R101 | QRSA08J-333YN | RESISTOR | 33KΩ,1/10W |
| R102 | QRSA08J-223YN | RESISTOR | 22KΩ,1/10W |
| R103 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R104 | QRSA08J-222YN | RESISTOR | 2.2KΩ,1/10W |
| R105 | QRSA08J-393YN | RESISTOR | 39KΩ,1/10W |
| R106 | QRD161J-122 | RESISTOR | 1.2KΩ,1/6W |
| R107 | QRSA08J-102YN | RESISTOR | 1KΩ,1/10W |
| R108 | QVZ3521-102Z | V RESISTOR,COLOR C OMB GAIN | |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | | #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|------------------------------|--------------|------------|---------------|------------------------|--------------|
| R109 | QRSA08J-221YN | RESISTOR | 220Ω, 1/10W | R228 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10V |
| R110 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | R229 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10V |
| R111 | QRD161J-223 | RESISTOR | 22KΩ, 1/6W | R230 | QRSA08J-272YN | RESISTOR | 2.7KΩ, 1/10V |
| R112 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | R231 | QRSA08J-100YN | RESISTOR | 10Ω, 1/10V |
| R113 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | R233 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10V |
| R114 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | R234 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10V |
| R118 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W | R235 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10V |
| R119 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W | R237 | QRSA08J-511YN | RESISTOR | 510Ω, 1/10V |
| R120 | QRSA08J-682YN | RESISTOR | 6.8KΩ, 1/10W | C1 | QCSA1HJ-821 | CAPACITOR | 820pF, 50V |
| R121 | QRSA08J-682YN | RESISTOR | 6.8KΩ, 1/10W | C2 | QETC1CM-226 | E CAPACITOR | 22μF, 16V |
| R122 | QRSA08J-272YN | RESISTOR | 2.7KΩ, 1/10W | C3 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R123 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C4 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R124 | QRSA08J-122YN | RESISTOR | 1.2KΩ, 1/10W | C5 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R125 | QRD161J-272 | RESISTOR | 2.7KΩ, 1/6W | C6 | QETC1HM-225 | E CAPACITOR | 2.2μF, 50V |
| R126 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C7 | QETC1HM-225 | E CAPACITOR | 2.2μF, 50V |
| R127 | QRD161J-122 | RESISTOR | 1.2KΩ, 1/6W | C8 | QETC1AM-226 | E CAPACITOR | 22μF, 10V |
| R128 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W | C9 | QETC0JM-476 | E CAPACITOR | 47μF, 6.3V |
| R129 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W | C10 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R130 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C12 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R131 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10W | C13 | QCSA1HJ-270 | CAPACITOR | 27pF, 50V |
| R132 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C14 | QCSA1HJ-220 | CAPACITOR | 22pF, 50V |
| R133 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W | C15 | QCSA1HJ-270 | CAPACITOR | 27pF, 50V |
| R134 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C16 | QCSA1HJ-270 | CAPACITOR | 27pF, 50V |
| R135 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | C17 | QCSA1HJ-470 | CAPACITOR | 47pF, 50V |
| R136 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | C18 | QCC11CJ-473 | CAPACITOR | 0.047μF, 16V |
| R137 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C19 | QCFA1HZ-473 | CAPACITOR | 0.047μF, 50V |
| R138 | QRD161J-222 | RESISTOR | 2.2KΩ, 1/6W | C20 | QETC0JM-476 | E CAPACITOR | 47μF, 6.3V |
| R140 | QRSA08J-182YN | RESISTOR | 1.8KΩ, 1/10W | C21 | QETC1AM-226 | E CAPACITOR | 22μF, 10V |
| R141 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W | C22 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R142 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W | C23 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R143 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W | C24 | QETC1EM-475 | E CAPACITOR | 4.7μF, 25V |
| R144 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W | C25 | QETC1CM-476 | E CAPACITOR | 47μF, 16V |
| R145 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | C26 | QETC0JM-476 | E CAPACITOR | 47μF, 6.3V |
| R146 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C29 | QCSA1HJ-180 | CAPACITOR | 18pF, 50V |
| R147 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C30 | QETC0JM-476 | E CAPACITOR | 47μF, 6.3V |
| R148 | QRD161J-103 | RESISTOR | 10KΩ, 1/6W | C31 | QETC1HM-105 | E CAPACITOR | 1μF, 50V |
| R149 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W | C101 | QCFA1HZ-223 | CAPACITOR | 0.022μF, 50V |
| R151 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C102 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V |
| R152 | QRSA08J-272YN | RESISTOR | 2.7KΩ, 1/10W | C103 | QCSA1HJ-101 | CAPACITOR | 100pF, 50V |
| R153 | QRSA08J-273YN | RESISTOR | 27KΩ, 1/10W | C104 | QCSA1HJ-101 | CAPACITOR | 100pF, 50V |
| R154 | QRSA08J-475YN | RESISTOR | 4.7MΩ, 1/10W | C105 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R155 | QRSA08J-475YN | RESISTOR | 4.7MΩ, 1/10W | C107 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R204 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C108 | QCVB1CN-103 | CAPACITOR | 0.01μF, 16V |
| R206 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W | C109 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| R207 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W | C110 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R211 | QRSA08J-821YN | RESISTOR | 820Ω, 1/10W | C111 | QCB1HJ-102 | CAPACITOR | 0.001μF, 50V |
| R212 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C112 | QETC1HM-225 | E CAPACITOR | 2.2μF, 50V |
| R213 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C113 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R214 | QVZ3521-681Z | V RESISTOR, NC BALANCE | | C114 | QETC1HM-224 | E CAPACITOR | 0.22μF, 50V |
| R215 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W | C117 | QCC11EJ-104 | CAPACITOR | 0.1μF, 25V |
| R216 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C118 | QCSA1HJ-561 | CAPACITOR | 560pF, 50V |
| R217 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W | C119 | QETC1EM-335 | E CAPACITOR | 3.3μF, 25V |
| R218 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W | C120 | QETC1HM-475 | E CAPACITOR | 4.7μF, 50V |
| R219 | QVZ3521-681Z | V RESISTOR, CNR NC BALANCE-1 | | C121 | QCYA1HK-153 | CAPACITOR | 0.015μF, 50V |
| R220 | QVZ3521-152Z | V RESISTOR, CNR NC BALANCE-2 | | C123 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| R221 | ERT-D2FGL142S | THERMISTOR | | C124 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V |
| R222 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C125 | QCSA1HJ-471 | CAPACITOR | 470pF, 50V |
| R223 | QRD161J-102 | RESISTOR | 1KΩ, 1/6W | C126 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R224 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W | C127 | QCSA1HJ-102 | CAPACITOR | 0.001μF, 50V |
| R225 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W | C128 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| R226 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | C129 | QETC1HM-104 | E CAPACITOR | 0.1μF, 50V |
| R227 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | C130 | QCVB1CN-103 | CAPACITOR | 0.01μF, 16V |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | | #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|------------------------|---------------|-------------------|---------------|--------------------------|--------------|
| R12 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W | L1 | PU60025-R82 | COIL | 0.82μH |
| R15 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W | L2 | PU60025-1R0 | COIL | 1μH |
| R16 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | L4 | PU60025-R91S | COIL | 0.91μH |
| R17 | QRSA08J-822YN | RESISTOR | 8.2KΩ, 1/10W | L5 | PU59152-270J | COIL | 27μH |
| R18 | QRSA08J-123YN | RESISTOR | 12KΩ, 1/10W | L6 | PU59152-150J | COIL | 15μH |
| R19 | QVPA606-153Z | V RESISTOR,RF AGC | | L11 | PU59152-R22J | COIL | 0.22μH |
| R20 | QRSA08J-824YN | RESISTOR | 820KΩ, 1/10W | L12 | PU59152-101J | COIL | 100μH |
| R21 | QRD181J-153 | RESISTOR | 15KΩ, 1/8W | CF1 | PU59039 | CERAMIC FILTER | |
| R22 | QRSA08J-104YN | RESISTOR | 100KΩ, 1/10W | CF2 | PU60774 | CERAMIC FILTER | |
| R23 | QRSA08J-820YN | RESISTOR | 82Ω, 1/10W | SAW1 | PEVB0419 | SAW FILTER | |
| R24 | QRSA08J-272YN | RESISTOR | 2.7KΩ, 1/10W | SAW2 | PEVB0420 | SAW FILTER | |
| R25 | QRD161J-104 | RESISTOR | 100KΩ, 1/6W | T1 | PELN0403-02 | IF.TRANSFORMER,FM DETECT | |
| R26 | QRSA08J-513YN | RESISTOR | 51KΩ, 1/10W | T2 | PELN0401 | IF.TRANSFORMER,AFC | |
| R27 | QRSA08J-513YN | RESISTOR | 51KΩ, 1/10W | T3 | PELN0402 | IF.TRANSFORMER,VCO | |
| R29 | QRSA08J-822YN | RESISTOR | 8.2KΩ, 1/10W | ETH1 | PQ45208 | EARTH PLATE | |
| R30 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W | SCW1 | SDST2605Z | SCREW | |
| R31 | QRSA08J-122YN | RESISTOR | 1.2KΩ, 1/10W | SCW2 | SDSF3010Z | SCREW,X2 | |
| R32 | QRSA08J-271YN | RESISTOR | 270Ω, 1/10W | △ TB2 | PQ11490-3 | TERMINAL BOARD(2) | |
| R33 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10W | WR1 | PW30402-BB12M | COAXIAL CORD | |
| R34 | QRSA08J-271YN | RESISTOR | 270Ω, 1/10W | CN1 | PEMC0915-005 | FFC CONNECTOR | |
| R35 | QRSA08J-271YN | RESISTOR | 270Ω, 1/10W | CN2 | PU59555-3 | CONNECTOR | |
| R36 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10W | CN3 | PEMC0915-008 | FFC CONNECTOR | |
| R37 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W | CN4 | PU60910-4 | CONNECTOR | |
| R38 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | CN5 | PU59555-2 | CONNECTOR | |
| R39 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W | - DEMOD SECTION - | | | |
| R40 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W | IC2 | UPC1872CU | IC | |
| R41 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | Q201 | DTC114TU | TRANSISTOR | |
| R42 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W | Q202 | DTC114TU | TRANSISTOR | |
| R43 | QRSA08J-105YN | RESISTOR | 1MΩ, 1/10W | R201 | QRSA08J-683YN | RESISTOR | 68KΩ, 1/10W |
| R44 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | R202 | QRSA08J-302YN | RESISTOR | 3KΩ, 1/10W |
| R45 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W | R203 | QRSA08J-512YN | RESISTOR | 5.1KΩ, 1/10W |
| C1 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V | R204 | QRSA08J-563YN | RESISTOR | 56KΩ, 1/10W |
| C2 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V | R205 | QRSA08J-513YN | RESISTOR | 51KΩ, 1/10W |
| C3 | QCTA1CH-470 | CAPACITOR | 47pF, 16V | R206 | QRSA08J-513YN | RESISTOR | 51KΩ, 1/10W |
| C5 | QCTA1CH-470 | CAPACITOR | 47pF, 16V | R207 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| C10 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V | R208 | NRVA62D-393N | RESISTOR | 39KΩ, 1/16W |
| C15 | QCTA1CH-331 | CAPACITOR | 330pF, 16V | R209 | NRVA62D-333N | RESISTOR | 33KΩ, 1/16W |
| C16 | QETC1HM-224 | E CAPACITOR | 0.22μF, 50V | R210 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| C18 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V | R211 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| C19 | QFLC1HJ-683Z | M CAPACITOR | 0.068μF, 50V | R212 | QRSA08J-122YN | RESISTOR | 1.2KΩ, 1/10W |
| C20 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V | R213 | QRSA08J-122YN | RESISTOR | 1.2KΩ, 1/10W |
| C21 | QETC1HM-105 | E CAPACITOR | 1μF, 50V | R216 | QVPA606-473Z | V RESISTOR,SEPARATION-1 | |
| C22 | QETC1HM-474 | E CAPACITOR | 0.47μF, 50V | R217 | QVPA606-104Z | V RESISTOR,SEPARATION-2 | |
| C23 | QCTA1CH-150 | CAPACITOR | 15pF, 16V | R218 | QVPC624-223 | V RESISTOR,VCO | |
| C24 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V | R219 | QVPC624-103 | V RESISTOR,LPF | |
| C25 | PECA0780-154Z | M CAPACITOR | | R223 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W |
| C26 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V | R224 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| C27 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V | R225 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W |
| C30 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | R227 | NRVA62D-303N | RESISTOR | 30KΩ, 1/16W |
| C31 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V | R228 | QRSA08J-563YN | RESISTOR | 56KΩ, 1/10W |
| C32 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | R229 | QRSA08J-334YN | RESISTOR | 330KΩ, 1/10W |
| C33 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | R230 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| C36 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | C201 | QETC1HM-225 | E CAPACITOR | 2.2μF, 50V |
| C37 | QETC0JM-107 | E CAPACITOR | 100μF, 6.3V | C202 | QETC1HM-474 | E CAPACITOR | 0.47μF, 50V |
| C38 | QCYA1HK-152 | CAPACITOR | 0.0015μF, 50V | C203 | QETC1HM-105 | E CAPACITOR | 1μF, 50V |
| C39 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V | C204 | QETC1HM-105 | E CAPACITOR | 1μF, 50V |
| C40 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | C205 | QETC1EM-475 | E CAPACITOR | 4.7μF, 25V |
| C41 | QETC1HM-106 | E CAPACITOR | 10μF, 50V | C206 | QETC1HM-105 | E CAPACITOR | 1μF, 50V |
| C42 | QCYA1HK-102 | CAPACITOR | 0.001μF, 50V | C207 | QETC1CM-226 | E CAPACITOR | 22μF, 16V |
| C43 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | C208 | QETC1CM-106 | E CAPACITOR | 10μF, 16V |
| C44 | QCYA1HK-103 | CAPACITOR | 0.01μF, 50V | | | | |
| C45 | QETC1CM-476 | E CAPACITOR | 47μF, 16V | | | | |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|-------------|------------------------|-------------------|
| C209 | QETC1CM-106 | E CAPACITOR | 10 μ F,16V |
| C210 | QEE81CJ-106 | TANTAL CAPACITOR | 10 μ F,16V |
| C211 | QEE81CJ-335 | TANTAL CAPACITOR | 3.3 μ F,16V |
| C212 | QCYA1HK-103 | CAPACITOR | 0.01 μ F,50V |
| C213 | QCYA1EK-473 | CAPACITOR | 0.047 μ F,25V |
| C214 | QCYA1EK-104 | CAPACITOR | 0.1 μ F,25V |
| C215 | QCYA1EK-104 | CAPACITOR | 0.1 μ F,25V |
| C216 | QCYA1EK-104 | CAPACITOR | 0.1 μ F,25V |
| C217 | QCYA1EK-104 | CAPACITOR | 0.1 μ F,25V |
| C218 | QCYA1HK-103 | CAPACITOR | 0.01 μ F,50V |
| C219 | QCYA1HK-103 | CAPACITOR | 0.01 μ F,50V |
| C220 | QCYA1HK-103 | CAPACITOR | 0.01 μ F,50V |
| C221 | QETC1CM-476 | E CAPACITOR | 47 μ F,16V |
| C222 | QETC1HM-105 | E CAPACITOR | 1 μ F,50V |

- MIC AMP SECTION (S6900U ONLY) -

| | | | |
|-------|--------------|-----------------|---------------------|
| IC301 | XRA15218N | IC | |
| R301 | QRD161J-473 | RESISTOR | 47K Ω ,1/6W |
| R302 | QRD161J-393 | RESISTOR | 39K Ω ,1/6W |
| R303 | QRD161J-182 | RESISTOR | 1.8K Ω ,1/6W |
| R304 | QRD161J-273 | RESISTOR | 27K Ω ,1/6W |
| R305 | QRD161J-102 | RESISTOR | 1K Ω ,1/6W |
| R306 | QRD161J-223 | RESISTOR | 22K Ω ,1/6W |
| C301 | QEK61HM-105 | E CAPACITOR | 1 μ F,50V |
| C302 | QEK61HM-105 | E CAPACITOR | 1 μ F,50V |
| C303 | QCB1HJ-391 | CAPACITOR | 390pF,50V |
| C304 | QEK61HM-105 | E CAPACITOR | 1 μ F,50V |
| C305 | QEK61HM-105 | E CAPACITOR | 1 μ F,50V |
| C306 | QETC1CM-106 | E CAPACITOR | 10 μ F,16V |
| SLD1 | PQ42581 | PRE AMP SHIELD1 | |
| SLD2 | PQ42582 | PRE AMP SHIELD2 | |
| SLD3 | PQ42583 | PRE AMP SHIELD3 | |
| CN301 | PU59555-3 | CONNECTOR | |
| CN302 | PEMC0915-004 | FFC CONNECTOR | |

AUDIO UNIT BOARD ASSEMBLY(HR-S4900U)<09>

| | | | |
|------|---------------|---------------------------|----------------------|
| PWBA | PB10716A-02 | AUDIO UNIT BOARD ASSEMBLY | |
| IC1 | JCP0038 | IC | |
| Q1 | 2SC4081(R) | TRANSISTOR | |
| Q2 | 2SC4081(R) | TRANSISTOR | |
| D1 | DAN202U | DIODE | |
| R1 | NRSA63J-475N | RESISTOR | 4.7M Ω ,1/16W |
| R2 | NRSA63J-511N | RESISTOR | 510 Ω ,1/16W |
| R3 | NRSA63J-472N | RESISTOR | 4.7K Ω ,1/16W |
| R4 | NRSA63J-513N | RESISTOR | 51K Ω ,1/16W |
| R5 | NVP1301-473NU | V RESISTOR,L DEVIATION | |
| R8 | NRSA63J-822N | RESISTOR | 8.2K Ω ,1/16W |
| R9 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R10 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R11 | NVP1301-153NZ | V RESISTOR,L CARRIER | |
| R12 | NRSA63J-105N | RESISTOR | 1M Ω ,1/16W |
| R13 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R14 | NRSA63J-183N | RESISTOR | 18K Ω ,1/16W |
| R18 | NRSA63J-303N | RESISTOR | 30K Ω ,1/16W |
| R19 | NRSA63J-222N | RESISTOR | 2.2K Ω ,1/16W |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|------------------------|----------------------|
| R20 | NRSA63J-222N | RESISTOR | 2.2K Ω ,1/16W |
| R22 | NRSA63J-102N | RESISTOR | 1K Ω ,1/16W |
| R23 | NRSA63J-102N | RESISTOR | 1K Ω ,1/16W |
| R24 | NRSA63J-752N | RESISTOR | 7.5K Ω ,1/16W |
| R25 | NVP1301-153NZ | V RESISTOR,R CARRIER | |
| R26 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R27 | NRSA63J-822N | RESISTOR | 8.2K Ω ,1/16W |
| R30 | NVP1301-473NU | V RESISTOR,R DEVIATION | |
| R31 | NRSA63J-513N | RESISTOR | 51K Ω ,1/16W |
| R32 | NRSA63J-472N | RESISTOR | 4.7K Ω ,1/16W |
| R33 | NRSA63J-511N | RESISTOR | 510 Ω ,1/16W |
| R34 | NRSA63J-475N | RESISTOR | 4.7M Ω ,1/16W |
| R35 | NRSA63J-514N | RESISTOR | 510K Ω ,1/16W |
| R36 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R37 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R41 | NRSA63J-101N | RESISTOR | 100 Ω ,1/16W |
| R42 | NRSA63J-101N | RESISTOR | 100 Ω ,1/16W |
| R43 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R44 | NRSA63J-154N | RESISTOR | 150K Ω ,1/16W |
| R45 | NRSA63J-102N | RESISTOR | 1K Ω ,1/16W |
| R46 | NRSA63J-103N | RESISTOR | 10K Ω ,1/16W |
| R47 | NRSA63J-154N | RESISTOR | 150K Ω ,1/16W |
| R48 | NRSA63J-102N | RESISTOR | 1K Ω ,1/16W |
| R49 | NRSA63J-334N | RESISTOR | 330K Ω ,1/16W |
| R50 | NRSA63J-473N | RESISTOR | 47K Ω ,1/16W |
| R51 | NRSA63J-473N | RESISTOR | 47K Ω ,1/16W |
| R52 | NRSA63J-104N | RESISTOR | 100K Ω ,1/16W |
| R56 | NRSA63J-101N | RESISTOR | 100 Ω ,1/16W |
| R57 | NRSA63J-101N | RESISTOR | 100 Ω ,1/16W |
| C2 | QETC1AM-336 | E CAPACITOR | 33 μ F,10V |
| C3 | QFLC1HJ-473Z | M CAPACITOR | 0.047 μ F,50V |
| C4 | QETC1HM-225 | E CAPACITOR | 2.2 μ F,50V |
| C5 | QFV21HJ-333 | F CAPACITOR | 0.033 μ F,50V |
| C6 | QETC1AM-476 | E CAPACITOR | 47 μ F,10V |
| C7 | QETC1CM-106 | E CAPACITOR | 10 μ F,16V |
| C8 | QFLC1HJ-103Z | M CAPACITOR | 0.01 μ F,50V |
| C9 | QETC0JM-107 | E CAPACITOR | 100 μ F,6.3V |
| C10 | NCB31HK-102A | CAPACITOR | 0.001 μ F,50V |
| C11 | QFLC1HJ-104Z | M CAPACITOR | 0.1 μ F,50V |
| C12 | QFLC1HJ-223Z | M CAPACITOR | 0.022 μ F,50V |
| C13 | NCB31HK-821A | CAPACITOR | 820pF,50V |
| C14 | QFLC1HJ-392Z | M CAPACITOR | 0.0039 μ F,50V |
| C15 | QFLC1HJ-333Z | M CAPACITOR | 0.033 μ F,50V |
| C16 | QETC1HM-105 | E CAPACITOR | 1 μ F,50V |
| C18 | NCB31HK-561A | CAPACITOR | 560pF,50V |
| C20 | NCS31HJ-101A | CAPACITOR | 100pF,50V |
| C21 | NCS31HJ-101A | CAPACITOR | 100pF,50V |
| C22 | QFLC1HJ-392Z | M CAPACITOR | 0.0039 μ F,50V |
| C23 | NCB31HK-821A | CAPACITOR | 820pF,50V |
| C24 | QFLC1HJ-223Z | M CAPACITOR | 0.022 μ F,50V |
| C25 | QFLC1HJ-104Z | M CAPACITOR | 0.1 μ F,50V |
| C26 | NCB31HK-102A | CAPACITOR | 0.001 μ F,50V |
| C27 | QETC0JM-107 | E CAPACITOR | 100 μ F,6.3V |
| C28 | QFLC1HJ-103Z | M CAPACITOR | 0.01 μ F,50V |
| C29 | QETC1CM-106 | E CAPACITOR | 10 μ F,16V |
| C30 | QETC1AM-476 | E CAPACITOR | 47 μ F,10V |
| C31 | QFLC1HJ-333Z | M CAPACITOR | 0.033 μ F,50V |
| C32 | QETC1HM-225 | E CAPACITOR | 2.2 μ F,50V |
| C33 | QFLC1HJ-473Z | M CAPACITOR | 0.047 μ F,50V |
| C34 | QETC1AM-336 | E CAPACITOR | 33 μ F,10V |
| C36 | QETC1CM-106 | E CAPACITOR | 10 μ F,16V |
| C38 | QETC1CM-226 | E CAPACITOR | 22 μ F,16V |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION | |
|------|---------|----------------|------------------------|-------------|
| C39 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C40 | | QETC1HM-104 | E CAPACITOR | 0.1μF,50V |
| C41 | | QETC0JM-107 | E CAPACITOR | 100μF,6.3V |
| C42 | | QETC0JM-107 | E CAPACITOR | 100μF,6.3V |
| C43 | | QETC1AM-107 | E CAPACITOR | 100μF,10V |
| C44 | | QETC1CM-476 | E CAPACITOR | 47μF,16V |
| C45 | | QETC1AM-476 | E CAPACITOR | 47μF,10V |
| C46 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C47 | | NCB31EK-103A | CAPACITOR | 0.01μF,25V |
| C48 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C49 | | QETC0JM-476 | E CAPACITOR | 47μF,6.3V |
| C50 | | NCF31CZ-104A | CAPACITOR | 0.1μF,16V |
| C51 | | QFV21HJ-563 | F CAPACITOR | 0.056μF,50V |
| C52 | | QFV21HJ-563 | F CAPACITOR | 0.056μF,50V |
| C53 | | QETC1HM-225 | E CAPACITOR | 2.2μF,50V |
| C54 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C55 | | NCF31CZ-104A | CAPACITOR | 0.1μF,16V |
| C56 | | QETC1HM-225 | E CAPACITOR | 2.2μF,50V |
| C57 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C58 | | NCF31CZ-104A | CAPACITOR | 0.1μF,16V |
| C59 | | QETC1HM-105 | E CAPACITOR | 1μF,50V |
| C60 | | NCF31CZ-104A | CAPACITOR | 0.1μF,16V |
| C61 | | NCF31CZ-104A | CAPACITOR | 0.1μF,16V |
| L1 | | PELN0530-101JZ | COIL | 100μH |
| L2 | | PELN0530-101JZ | COIL | 100μH |
| L3 | | PELN0530-101JZ | COIL | 100μH |
| BPF1 | | PU60396 | BAND PASS FILTER | |
| BPF2 | | PU60397 | BAND PASS FILTER | |
| JP1 | | PEMC0919-126 | PIN HEADER | |
| JP2 | | PEMC0919-126 | PIN HEADER | |

A/C HEAD BOARD <12>

| | | |
|-------|---------------|--------------------------|
| PWB | PB40046-01-02 | AUDIO CONTROL HEAD BOARD |
| CN201 | PU59555-104 | CONNECTOR |
| CN202 | PU59555-103 | CONNECTOR |

ON SCREEN BOARD ASSEMBLY <17>

| | | |
|-------|--------------|--------------------------|
| PWBA1 | PB20631A-01 | ON SCREEN BOARD ASSEMBLY |
| IC1 | M52684AP | IC |
| IC2 | M35010-089SP | IC |
| Q1 | DTC144EU | TRANSISTOR |
| Q2 | DTC114EU | TRANSISTOR |
| Q3 | DTC144EU | TRANSISTOR |
| Q4 | 2SK665 | TRANSISTOR |
| Q5 | 2SA1576(QR) | TRANSISTOR |
| Q6 | 2SC4081(QRS) | TRANSISTOR |
| Q8 | 2SC4081(QRS) | TRANSISTOR |
| Q9 | 2SA1576(QR) | TRANSISTOR |
| Q10 | 2SC4081(QRS) | TRANSISTOR |
| D1 | DAP202U | DIODE |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION | |
|-----|---------|---------------|--------------------------|--------------|
| R1 | | QRSA08J-563YN | RESISTOR | 56KΩ,1/10V |
| R2 | | QRSA08J-472YN | RESISTOR | 4.7KΩ,1/10V |
| R3 | | QRSA08J-562YN | RESISTOR | 5.6KΩ,1/10V |
| R4 | | QRSA08J-123YN | RESISTOR | 12KΩ,1/10V |
| R5 | | QRSA08J-152YN | RESISTOR | 1.5KΩ,1/10V |
| R6 | | QRSA08J-271YN | RESISTOR | 270Ω,1/10V |
| R7 | | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| R8 | | QRSA08J-223YN | RESISTOR | 22KΩ,1/10V |
| R9 | | QRSA08J-104YN | RESISTOR | 100KΩ,1/10V |
| R10 | | QRSA08J-471YN | RESISTOR | 470Ω,1/10V |
| R11 | | QRSA08J-221YN | RESISTOR | 220Ω,1/10V |
| R12 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R13 | | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| R14 | | QRSA08J-101YN | RESISTOR | 100Ω,1/10V |
| R15 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R16 | | QRSA08J-681YN | RESISTOR | 680Ω,1/10V |
| R17 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R18 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R19 | | QRSA08J-561YN | RESISTOR | 560Ω,1/10V |
| R20 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R21 | | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| R22 | | QRSA08J-912YN | RESISTOR | 9.1KΩ,1/10V |
| R23 | | QRSA08J-103YN | RESISTOR | 10KΩ,1/10V |
| R24 | | QRSA08J-221YN | RESISTOR | 220Ω,1/10V |
| R25 | | QRD161J-151 | RESISTOR | 150Ω,1/6V |
| R26 | | QRSA08J-182YN | RESISTOR | 1.8KΩ,1/10V |
| R27 | | QRSA08J-392YN | RESISTOR | 3.9KΩ,1/10V |
| R28 | | QRSA08J-333YN | RESISTOR | 33KΩ,1/10V |
| R29 | | QRSA08J-333YN | RESISTOR | 33KΩ,1/10V |
| R33 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R34 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R35 | | QRSA08J-102YN | RESISTOR | 1KΩ,1/10V |
| R40 | | QRSA08J-681YN | RESISTOR | 680Ω,1/10V |
| C1 | | QETC1HM-334 | E CAPACITOR | 0.33μF,50V |
| C2 | | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V |
| C3 | | QCSA1HJ-220 | CAPACITOR | 22pF,50V |
| C4 | | QCYA1HK-152 | CAPACITOR | 0.0015μF,50V |
| C5 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C6 | | QETC1HM-105 | E CAPACITOR | 1μF,50V |
| C7 | | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V |
| C8 | | QFN31HJ-562 | M CAPACITOR | 0.0056μF,50V |
| C9 | | QETC1HM-335 | E CAPACITOR | 3.3μF,50V |
| C10 | | QETC1CM-106 | E CAPACITOR | 10μF,16V |
| C11 | | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V |
| C12 | | QCSA1HJ-181 | CAPACITOR | 180pF,50V |
| C13 | | QCSB1HJ-470 | CAPACITOR | 47pF,50V |
| C14 | | QCSA1HJ-430 | CAPACITOR | 43pF,50V |
| C15 | | QFN31HJ-104 | M CAPACITOR | 0.1μF,50V |
| C20 | | QCSA1HJ-680 | CAPACITOR | 68pF,50V |
| C21 | | QAT3120-200Z | TRIM CAPACITOR,10T CLOCK | 20pF |
| C22 | | QCTA1CH-150 | CAPACITOR | 15pF,16V |
| C23 | | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V |
| C24 | | QETC0JM-476 | E CAPACITOR | 47μF,6.3V |
| L1 | | PU48530-101K | COIL | 100μH |
| L2 | | PU59988-220JY | COIL | 22μH |
| L3 | | PU48530-101K | COIL | 100μH |
| △ | CF1 | PU60086 | RESONATOR | |
| △ | X1 | PEVB0435 | CRYSTAL RESONATOR | |
| CN1 | | PEMC0712-114 | PIN HEADER | |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION |
|------------|----------|------------------------|
| ***** | | |

DISPLAY BOARD ASSEMBLY <28>

| | | | |
|-------|---------------|------------------------------|-------------|
| PWBA1 | PB10781B1-01 | DISPLAY BOARD ASSY,HR-S4900U | |
| | PB10781A1-01 | DISPLAY BOARD ASSY,HR-S6900U | |
| IC1 | UPD16311GC(E) | IC | |
| IC2 | GP1U801X | IR DETECT UNIT | |
| | or GP1U541X | IR DETECT UNIT | |
| D1 | RD4.7ES-T1B2 | ZENER DIODE | |
| D2 | 1SS132Y | DIODE | |
| D3 | 1SS132Y | DIODE | |
| D4 | 1SS132Y | DIODE | |
| D5 | 1SS132Y | DIODE | |
| D6 | 1SS132Y | DIODE | |
| D7 | 1SS132Y | DIODE | |
| D17 | SLH-34VC3F | LE DIODE,STEREO | |
| D18 | SLH-34MC3F | LE DIODE,SAP | |
| D19 | SLH-34MC3F | LE DIODE,S-VHS | |
| D20 | 1SS133 | DIODE | |
| D21 | 1SS133 | DIODE | |
| D25 | 11ES2 | DIODE | |
| R1 | QRD161J-333 | RESISTOR | 33KΩ,1/6W |
| R6 | QRD161J-333 | RESISTOR | 33KΩ,1/6W |
| R7 | QRD161J-333 | RESISTOR | 33KΩ,1/6W |
| R8 | QRD161J-333 | RESISTOR | 33KΩ,1/6W |
| R9 | QRD161J-333 | RESISTOR | 33KΩ,1/6W |
| R10 | QRD161J-333 | RESISTOR | 33KΩ,1/6W |
| R11 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| R12 | QRD161J-222 | RESISTOR | 2.2KΩ,1/6W |
| R13 | QRD161J-471 | RESISTOR | 470Ω,1/6W |
| R17 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R18 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R19 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R23 | QRD161J-562 | RESISTOR | 5.6KΩ,1/6W |
| R24 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| R25 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| R26 | QRD161J-472 | RESISTOR | 4.7KΩ,1/6W |
| RA1 | QRB045J-333XM | RESISTOR ARRAY | 33KΩ,1/8W |
| C1 | QEK60JM-107 | E CAPACITOR | 100μF,6.3V |
| C2 | QEK61HM-106 | E CAPACITOR | 10μF,50V |
| C3 | QCF31HP-473 | CAPACITOR | 0.047μF,50V |
| C4 | QCF31HP-473 | CAPACITOR | 0.047μF,50V |
| C5 | QCSB1HJ-470 | CAPACITOR | 47pF,50V |
| C8 | QCC11EJ-104 | CAPACITOR | 0.1μF,25V |
| C9 | QCSB1HJ-470 | CAPACITOR | 47pF,50V |
| C10 | QER60JM-476 | E CAPACITOR | 47μF,6.3V |
| C11 | QEK60JM-476 | E CAPACITOR | 47μF,6.3V |
| C12 | QCSB1HJ-470 | CAPACITOR | 47pF,50V |
| C13 | QCB1HJ-101 | CAPACITOR | 100pF,50V |
| C15 | QCB1HJ-101 | CAPACITOR | 100pF,50V |
| L1 | PU48530-101J | COIL | 100μH |
| S8 | PU60392-2-2 | TACT SWITCH,STOP/EJECT | |
| S9 | PU60392-2-2 | TACT SWITCH,PLAY | |
| S10 | PU60392-2-2 | TACT SWITCH,REC | |
| S11 | PU60392-2-2 | TACT SWITCH,PAUSE | |
| S12 | PU60392-2-2 | TACT SWITCH,A.DUB | |
| S13 | PU60392-2-2 | TACT SWITCH,INSERT | |
| S14 | PU60392-2-2 | TACT SWITCH,SP/EP | |
| S15 | PU60392-2-2 | TACT SWITCH,TIMER | |
| S16 | PU60392-2-2 | TACT SWITCH,TV/VIDEO | |
| S17 | PU60392-2-2 | TACT SWITCH,S-VHS | |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION |
|------------|--------------|---------------------------|
| S18 | PU60392-2-2 | TACT SWITCH,R.A.EDIT |
| S19 | PU60392-2-2 | TACT SWITCH,IN/OUT |
| S20 | PU60392-2-2 | TACT SWITCH, START |
| FDP1 | PEDP0104 | FLUORESCENT DISPLAY PANEL |
| CL1 | PU55379 | MINI CLAMP |
| HD1 | PQM30038-2-2 | LED HOLDER,X3 D17 D18 D19 |
| HD2 | PQ31334-1-2 | D.HOLDER (R) |
| HD3 | PQ31333-1-2 | D.HOLDER (L) |
| JA4 | PU60664-3 | MINI JACK,MIC HR-S6900U |
| CN1 | PEMC0917-111 | FFC CONNECTOR,(1-11) |
| CN2 | PU61044-104 | WIRE TRAP |
| CN3 | PEMC0889-015 | B TO B CONNECTOR |
| CN8 | PU59555-7 | CONNECTOR |

SWITCH/JACK BOARD ASSEMBLY <36>

| | | | |
|-------|--------------|----------------------------------|------------|
| PWBA1 | PB10781A2-01 | SWITCH/JACK BOARD ASSY,HR-S6900U | |
| | PB10781B2-01 | SWITCH/JACK BOARD ASSY,HR-S4900U | |
| D11 | 1SS133 | DIODE | |
| D12 | 1SS133 | DIODE | |
| D14 | SLH-34VC3F | LE DIODE,POWER | |
| D15 | SLH-34MC3F | LE DIODE,F.MESSAGE | |
| D16 | SLH-34DC3F | LE DIODE,HYPER BASS | |
| R2 | QRD161J-103 | RESISTOR | 10KΩ,1/6W |
| R3 | QRD161J-750 | RESISTOR | 75Ω,1/6W |
| R4 | QRD161J-750 | RESISTOR | 75Ω,1/6W |
| R5 | QRD161J-560 | RESISTOR | 56Ω,1/6W |
| R14 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R15 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R16 | QRD161J-331 | RESISTOR | 330Ω,1/6W |
| R20 | QRD161J-180 | RESISTOR | 18Ω,1/6W |
| R21 | QRD161J-103 | RESISTOR | 10KΩ,1/6W |
| R22 | QRD161J-103 | RESISTOR | 10KΩ,1/6W |
| C17 | QCVB1CN-103 | CAPACITOR | 0.01μF,16V |
| C18 | QCVB1CN-103 | CAPACITOR | 0.01μF,16V |
| S1 | PU60392-2-2 | TACT SWITCH,POWER | |
| S2 | PU60392-2-2 | TACT SWITCH,MENU | |
| S3 | PU60392-2-2 | TACT SWITCH,F.MESSAGE | |
| S4 | PU60392-2-2 | TACT SWITCH,HYPER BASS | |
| S5 | PU60392-2-2 | TACT SWITCH,SELECT | |
| S6 | PU60392-2-2 | TACT SWITCH,CH- | |
| S7 | PU60392-2-2 | TACT SWITCH,CH+ | |
| CL1 | PU59311 | WIRE CLAMP | |
| CL2 | PU59311-3 | WIRE CLAMP | |
| HD1 | PQ43214 | LED HOLDER,X3 D14 D15 D16 | |
| JA1 | PEMC1008 | PIN JACK(SW),RCA JACK | |
| JA2 | PEMC0937 | MINI DIN CONN,S | |
| JA3 | PU60659 | MINI JACK,R.PAUSE | |
| CN4 | PEMC0825-015 | B TO B CONNECTOR | |
| CN5 | PU59555-6 | CONNECTOR | |
| CN6 | PU59555-3 | CONNECTOR | |
| CN7 | PU59555-3 | CONNECTOR,HR-S6900U | |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION |
|-------|---------|----------|------------------------|
| ***** | | | |

PRE BOARD ASSEMBLY <42>

| | | | |
|-------|---------------|--------------------------|--------------|
| PWBA1 | PB20622B | PRE BOARD ASSEMBLY | |
| △ IC1 | JCP0047-WE | IC | |
| Q3 | 2SC4081(QRS) | TRANSISTOR | |
| Q4 | 2SA1576(QR) | TRANSISTOR | |
| Q5 | 2SA1576(QR) | TRANSISTOR | |
| Q6 | 2SA1576(QR) | TRANSISTOR | |
| Q7 | 2SC4081(QRS) | TRANSISTOR | |
| Q8 | 2SC4081(QRS) | TRANSISTOR | |
| D1 | DAN202U | DIODE | |
| D2 | DAP202U | DIODE | |
| R1 | QRSA08J-330YN | RESISTOR | 33Ω, 1/10W |
| R2 | QRSA08J-430YN | RESISTOR | 43Ω, 1/10W |
| R3 | QRSA08J-470YN | RESISTOR | 47Ω, 1/10W |
| R4 | QRSA08J-430YN | RESISTOR | 43Ω, 1/10W |
| R7 | QRSA08J-271YN | RESISTOR | 270Ω, 1/10W |
| R8 | QRSA08J-271YN | RESISTOR | 270Ω, 1/10W |
| R9 | NRVA62D-203N | RESISTOR | 20KΩ, 1/16W |
| R10 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R14 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W |
| R15 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W |
| R16 | QRSA08J-104YN | RESISTOR | 100KΩ, 1/10W |
| R17 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W |
| R18 | QRSA08J-821YN | RESISTOR | 820Ω, 1/10W |
| R19 | QRSA08J-272YN | RESISTOR | 2.7KΩ, 1/10W |
| R20 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W |
| R25 | NVP1311-153N | V RESISTOR, REC FM LEVEL | |
| R26 | QRSA08J-273YN | RESISTOR | 27KΩ, 1/10W |
| R27 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W |
| R28 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10W |
| R29 | QRSA08J-122YN | RESISTOR | 1.2KΩ, 1/10W |
| R30 | QRSA08J-301YN | RESISTOR | 300Ω, 1/10W |
| R31 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| R32 | QRSA08J-151YN | RESISTOR | 150Ω, 1/10W |
| R33 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| C1 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| C2 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| C3 | QCYA1HK-223 | CAPACITOR | 0.022μF, 50V |
| C4 | QCYA1HK-223 | CAPACITOR | 0.022μF, 50V |
| C7 | QCTA1CH-7R0 | CAPACITOR | 7pF, 16V |
| C8 | QCTA1CH-120 | CAPACITOR | 12pF, 16V |
| C9 | QCTA1CH-180 | CAPACITOR | 18pF, 16V |
| C10 | QCTA1CH-130 | CAPACITOR | 13pF, 16V |
| C13 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| C14 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| C15 | QCYA1HK-473 | CAPACITOR | 0.047μF, 50V |
| C16 | QCYA1HK-473 | CAPACITOR | 0.047μF, 50V |
| C17 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W |
| C18 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W |
| C19 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| C20 | QCFA1EZ-104 | CAPACITOR | 0.1μF, 25V |
| C21 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C22 | QEK60JM-107 | E CAPACITOR | 100μF, 6.3V |
| C23 | QEK60JM-476 | E CAPACITOR | 47μF, 6.3V |
| C24 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C26 | QCFA1CZ-474 | CAPACITOR | 0.47μF, 16V |
| C28 | QCFA1CZ-105 | CAPACITOR | 1μF, 16V |
| C29 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C30 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION |
|------|---------|---------------|------------------------|
| C33 | | QCYA1HJ-222 | CAPACITOR 0.0022μF, 50 |
| C34 | | QCYA1HJ-222 | CAPACITOR 0.0022μF, 50 |
| C35 | | QCFA1HZ-103 | CAPACITOR 0.01μF, 50 |
| C36 | | QCFA1HZ-103 | CAPACITOR 0.01μF, 50 |
| C37 | | QEK61AM-476 | E CAPACITOR 47μF, 10 |
| C38 | | QCSA1HJ-271 | CAPACITOR 270pF, 50 |
| C39 | | QCSB1HJ-470 | CAPACITOR 47pF, 50 |
| C40 | | QCFA1HZ-103 | CAPACITOR 0.01μF, 50 |
| C41 | | QCFA1HZ-103 | CAPACITOR 0.01μF, 50 |
| C42 | | QCFA1HZ-103 | CAPACITOR 0.01μF, 50 |
| C43 | | QCFA1HZ-103 | CAPACITOR 0.01μF, 50 |
| C44 | | QCTA1CH-100 | CAPACITOR 10pF, 16 |
| C45 | | QCTA1CH-100 | CAPACITOR 10pF, 16 |
| C46 | | QCSA1HJ-221 | CAPACITOR 220pF, 50 |
| C52 | | QCFA1EZ-104 | CAPACITOR 0.1μF, 25 |
| L1 | | PU48530-101K | COIL 100μ |
| L2 | | PU48530-101K | COIL 100μ |
| L3 | | PU48530-101K | COIL 100μ |
| L4 | | PU59988-221JW | COIL 220μ |
| L5 | | PU59988-220JL | COIL 22μ |
| SLD1 | | PQ34267 | S.FRAME(PRE.) |
| SLD2 | | PQ34268-1-1 | S.CASE(PRE.) |
| WR1 | | PW30802-1705 | FFC WIRE, CN4 |
| CN1 | | PU60566-113 | F.P.C CONNECTOR |
| CN2 | | PU59555-103 | CONNECTOR |
| CN3 | | PU59555-104 | CONNECTOR |
| CN4 | | PU58798-117 | FFC CONNECTOR |

REC BOARD ASSEMBLY <43>

| | | |
|-------|--------------|--------------------|
| PWBA1 | PB10722B | REC BOARD ASSEMBLY |
| SLD1 | PQ21502-1-1 | SHIELD FRAM(REC) |
| CN1 | PEMC0916-015 | FFC CONNECTOR |
| CN2 | PEMC0968-117 | FFC CONNECTOR |
| CN3 | PEMC0916-009 | FFC CONNECTOR |
| CN4 | PU59555-3 | CONNECTOR |
| CN201 | PU59555-4 | CONNECTOR |
| CN202 | PEMC0915-108 | FFC CONNECTOR |
| CN301 | PU59555-3 | CONNECTOR |

- RF EQ SECTION -

| | | |
|-----|-----------------|-------------------|
| IC1 | MC74HC4052N | IC |
| | or TC74HC4052AP | IC |
| Q2 | 2SC4081(QRS) | TRANSISTOR |
| Q4 | DTA144EU | TRANSISTOR |
| Q5 | DTA124EU | TRANSISTOR |
| Q7 | DTC124EU | CHIP D TRANSISTOR |
| Q8 | 2SA1576(QR) | TRANSISTOR |
| Q9 | 2SC4081(QRS) | TRANSISTOR |
| Q10 | 2SA1576(QR) | TRANSISTOR |
| Q12 | 2SC4081(QRS) | TRANSISTOR |
| Q13 | 2SC4081(QRS) | TRANSISTOR |
| Q14 | 2SC4081(QRS) | TRANSISTOR |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|-------------------------------|--------------|
| Q15 | DTC124EU | CHIP D TRANSISTOR | |
| Q16 | 2SA1576(QR) | TRANSISTOR | |
| Q17 | 2SC4081(QRS) | TRANSISTOR | |
| Q18 | 2SC4081(QRS) | TRANSISTOR | |
| Q19 | 2SC4081(QRS) | TRANSISTOR | |
| Q20 | DTC143EU | TRANSISTOR | |
| Q21 | 2SC4081(QRS) | TRANSISTOR | |
| Q22 | 2SA1576(QR) | TRANSISTOR | |
| Q23 | 2SC4081(QRS) | TRANSISTOR | |
| Q24 | DTC144WU | TRANSISTOR | |
| Q25 | 2SC1740S(QRS) | TRANSISTOR | |
| D1 | DAN202U | DIODE | |
| D2 | DAN202U | DIODE | |
| D3 | DAN202U | DIODE | |
| R1 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W |
| R3 | QRSA08J-183YN | RESISTOR | 18KΩ, 1/10W |
| R4 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| R5 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R6 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R7 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W |
| R8 | QVPA603-222 | V RESISTOR,S SP VIDEO EQ | |
| R9 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| R10 | QRSA08J-391YN | RESISTOR | 390Ω, 1/10W |
| R11 | QVPA603-222 | V RESISTOR,S EP VIDEO EQ | |
| R12 | QRSA08J-822YN | RESISTOR | 8.2KΩ, 1/10W |
| R13 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W |
| R14 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W |
| R15 | QRSA08J-471YN | RESISTOR | 470Ω, 1/10W |
| R16 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W |
| R17 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| R18 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W |
| R19 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W |
| R20 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W |
| R22 | QRSA08J-822YN | RESISTOR | 8.2KΩ, 1/10W |
| R23 | QRSA08J-302YN | RESISTOR | 3KΩ, 1/10W |
| R24 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W |
| R26 | QRSA08J-183YN | RESISTOR | 18KΩ, 1/10W |
| R27 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| R28 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W |
| R29 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R30 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R31 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W |
| R32 | QRSA08J-752YN | RESISTOR | 7.5KΩ, 1/10W |
| R33 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W |
| R34 | QRSA08J-562YN | RESISTOR | 5.6KΩ, 1/10W |
| R35 | QRSA08J-561YN | RESISTOR | 560Ω, 1/10W |
| R36 | QRSA08J-821YN | RESISTOR | 820Ω, 1/10W |
| R37 | QRSA08J-821YN | RESISTOR | 820Ω, 1/10W |
| R38 | QRSA08J-511YN | RESISTOR | 510Ω, 1/10W |
| R39 | QRSA08J-273YN | RESISTOR | 27KΩ, 1/10W |
| R40 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| R41 | QRSA08J-331YN | RESISTOR | 330Ω, 1/10W |
| R42 | QRSA08J-562YN | RESISTOR | 5.6KΩ, 1/10W |
| R43 | QRSA08J-392YN | RESISTOR | 3.9KΩ, 1/10W |
| R44 | QRD161J-332 | RESISTOR | 3.3KΩ, 1/6W |
| R45 | NRVA62D-272N | RESISTOR | 2.7KΩ, 1/16W |
| R46 | NRVA62D-302N | RESISTOR | 3KΩ, 1/16W |
| R47 | NRVA62D-302N | RESISTOR | 3KΩ, 1/16W |
| R48 | NRVA62D-242N | RESISTOR | 2.4KΩ, 1/16W |
| R49 | QVPA603-332 | V RESISTOR,EP REC COLOR LEVEL | |
| R51 | QVPA603-682 | V RESISTOR,SP REC COLOR LEVEL | |
| R53 | NRVA62D-103N | RESISTOR | 10KΩ, 1/16W |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|------------------------|--------------|
| R54 | NRVA62D-751N | RESISTOR | 750Ω, 1/16W |
| R56 | NRVA62D-132N | RESISTOR | 1.3KΩ, 1/16W |
| R57 | NRVA62D-162N | RESISTOR | 1.6KΩ, 1/16W |
| R58 | NRVA62D-163N | RESISTOR | 16KΩ, 1/16W |
| R59 | NRVA62D-202N | RESISTOR | 2KΩ, 1/16W |
| R60 | NRVA62D-162N | RESISTOR | 1.6KΩ, 1/16W |
| R62 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R63 | QRSA08J-512YN | RESISTOR | 5.1KΩ, 1/10W |
| R64 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| R65 | QRSA08J-822YN | RESISTOR | 8.2KΩ, 1/10W |
| R67 | QRSA08J-681YN | RESISTOR | 680Ω, 1/10W |
| R68 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10W |
| R69 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R70 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10W |
| R71 | QRSA08J-301YN | RESISTOR | 300Ω, 1/10W |
| R72 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W |
| R73 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W |
| R76 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W |
| R77 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W |
| R78 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| C2 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C3 | QCSA1HJ-330 | CAPACITOR | 33pF, 50V |
| C4 | QCSA1HJ-390 | CAPACITOR | 39pF, 50V |
| C7 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C8 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C9 | QCSA1HJ-470 | CAPACITOR | 47pF, 50V |
| C10 | QCSA1HJ-220 | CAPACITOR | 22pF, 50V |
| C11 | QCSA1HJ-150 | CAPACITOR | 15pF, 50V |
| C12 | QCSA1HJ-180 | CAPACITOR | 18pF, 50V |
| C13 | QCSA1HJ-390 | CAPACITOR | 39pF, 50V |
| C14 | QCSA1HJ-150 | CAPACITOR | 15pF, 50V |
| C15 | QCSA1HJ-820 | CAPACITOR | 82pF, 50V |
| C16 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C17 | QETC1CM-476 | E CAPACITOR | 47μF, 16V |
| C18 | QCTA1CH-101 | CAPACITOR | 100pF, 16V |
| C20 | QCSA1HJ-680 | CAPACITOR | 68pF, 50V |
| C21 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C22 | QCSA1HJ-390 | CAPACITOR | 39pF, 50V |
| C23 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C24 | QCSA1HJ-150 | CAPACITOR | 15pF, 50V |
| C25 | QCSA1HJ-330 | CAPACITOR | 33pF, 50V |
| C26 | QCSA1HJ-180 | CAPACITOR | 18pF, 50V |
| C27 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C28 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C29 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C30 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C31 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C34 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C35 | QCFA1HZ-103 | CAPACITOR | 0.01μF, 50V |
| C36 | QETC1CM-476 | E CAPACITOR | 47μF, 16V |
| C37 | QCSA1HJ-331 | CAPACITOR | 330pF, 50V |
| C38 | QCSA1HJ-101 | CAPACITOR | 100pF, 50V |
| C39 | QCSA1HJ-101 | CAPACITOR | 100pF, 50V |
| C40 | QCSA1HJ-120 | CAPACITOR | 12pF, 50V |
| C41 | QCSA1HJ-180 | CAPACITOR | 18pF, 50V |
| L1 | PU59988-560J | COIL | 56μH |
| L2 | PU59988-150J | COIL | 15μH |
| L3 | PU59988-390J | COIL | 39μH |
| L4 | PU59988-221J | COIL | 220μH |
| L5 | PU59988-100J | COIL | 10μH |
| L6 | PU48530-101K | COIL | 100μH |
| L7 | PU59988-270J | COIL | 27μH |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|---------------|------------------------|-------|
| L8 | PU59988-270J | COIL | 27μH |
| L9 | PU59988-560J | COIL | 56μH |
| L10 | PU59988-220JY | COIL | 22μH |
| L11 | PU48530-101K | COIL | 100μH |
| L12 | PU59988-180J | COIL | 18μH |

- FMA P/R SECTION -

| | | | |
|--------|----------------|-----------------------------|--------------|
| IC201 | AN3380NK | IC | |
| Q201 | DTC124TU | CHIP DTRANSISTOR | |
| Q202 | DTC124TU | CHIP D TRANSISTOR | |
| Q203 | DTC114WU | TRANSISTOR | |
| Q204 | 2SC4081(QRS) | TRANSISTOR | |
| Q205 | DTA114EU | TRANSISTOR | |
| Q206 | DTC114WU | TRANSISTOR | |
| Q210 | DTC144WU | TRANSISTOR | |
| Q211 | DTA114EU | TRANSISTOR | |
| D201 | 1SS133 | DIODE | |
| D203 | 1SS133 | DIODE | |
| D204 | 1SS133 | DIODE | |
| R201 | QRSA08J-273YN | RESISTOR | 27KΩ, 1/10W |
| R202 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10W |
| R203 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10W |
| R204 | QRSA08J-274YN | RESISTOR | 270KΩ, 1/10W |
| R205 | QRSA08J-102YN | RESISTOR | 1KΩ, 1/10W |
| R206 | QRSA08J-333YN | RESISTOR | 33KΩ, 1/10W |
| R207 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10W |
| R208 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10W |
| R209 | QRSA08J-332YN | RESISTOR | 3.3KΩ, 1/10W |
| R210 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W |
| R211 | QRSA08J-153YN | RESISTOR | 15KΩ, 1/10W |
| R212 | QRSA08J-103YN | RESISTOR | 10KΩ, 1/10W |
| R214 | QRSA08J-560YN | RESISTOR | 56Ω, 1/10W |
| R215 | QRSA08J-560YN | RESISTOR | 56Ω, 1/10W |
| R216 | QVZ3521-331Z | V RESISTOR,FMA REC FM LEVEL | |
| R217 | QRSA08J-153YN | RESISTOR | 15KΩ, 1/10W |
| R218 | QRSA08J-152YN | RESISTOR | 1.5KΩ, 1/10W |
| R219 | QRSA08J-0R0Y | RESISTOR | 0Ω, 1/10W |
| R223 | QRSA08J-682YN | RESISTOR | 6.8KΩ, 1/10W |
| R224 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W |
| C201 | QCFA1EZ-104 | CAPACITOR | 0.1μF,25V |
| C202 | QCSA1HJ-391 | CAPACITOR | 390pF,50V |
| C203 | QCSA1HJ-561 | CAPACITOR | 560pF,50V |
| C204 | QCSA1HJ-102 | CAPACITOR | 0.001μF,50V |
| C205 | QCSA1HJ-561 | CAPACITOR | 560pF,50V |
| C206 | QCSA1HJ-102 | CAPACITOR | 0.001μF,50V |
| C207 | QCFA1CZ-224 | CAPACITOR | 0.22μF,16V |
| C208 | QCSA1HJ-391 | CAPACITOR | 390pF,50V |
| C209 | QEK60JM-107 | E CAPACITOR | 100μF,6.3V |
| C210 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V |
| C211 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V |
| C214 | QCSA1HJ-330 | CAPACITOR | 33pF,50V |
| C215 | QCSA1HJ-102 | CAPACITOR | 0.001μF,50V |
| C216 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V |
| C217 | QCSA1HJ-102 | CAPACITOR | 0.001μF,50V |
| C218 | QCSA1HJ-102 | CAPACITOR | 0.001μF,50V |
| C219 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V |
| C220 | QEK61EM-476 | E CAPACITOR | 47μF,25V |
| C221 | QCYA1HK-103 | CAPACITOR | 0.01μF,50V |
| C224 | QCFA1CZ-224 | CAPACITOR | 0.22μF,16V |
| L201 | PELN0530-101JZ | COIL | 100μH |
| BPF201 | PELN0290 | BAND PASS FILTER | |

| #△ REF No. | PART No. | PART NAME, DESCRIPTION | |
|------------|----------|------------------------|--|
| SLD1 | PQ42581 | PRE AMP SHIELD1 | |
| SLD2 | PQ42582 | PRE AMP SHIELD2 | |
| SLD3 | PQ42583 | PRE AMP SHIELD3 | |

- FIYING ERASE SECTION -

| | | | |
|--------|---------------|--------------|--------------|
| Q301 | 2SA1576(QRS) | TRANSISTOR | |
| Q302 | 2SC4097(QR) | TRANSISTOR | |
| Q303 | 2SA1576(Q) | TRANSISTOR | |
| Q304 | 2SD639R | TRANSISTOR | |
| Q305 | 2SD639R | TRANSISTOR | |
| D301 | UZ8.2BSC | ZENER DIODE | |
| D302 | DAN202U | DIODE | |
| R301 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W |
| R302 | QRSA08J-472YN | RESISTOR | 4.7KΩ, 1/10W |
| R303 | QRSA08J-222YN | RESISTOR | 2.2KΩ, 1/10W |
| R304 | QRSA08J-473YN | RESISTOR | 47KΩ, 1/10W |
| R305 | QRSA08J-183YN | RESISTOR | 18KΩ, 1/10W |
| R306 | QRD161J-104 | RESISTOR | 100KΩ, 1/6V |
| R307 | QRD161J-121 | RESISTOR | 120Ω, 1/6V |
| R308 | QRD161J-104 | RESISTOR | 100KΩ, 1/6V |
| R309 | QRD161J-121 | RESISTOR | 120Ω, 1/6V |
| R310 | QRSA08J-101YN | RESISTOR | 100Ω, 1/10W |
| C301 | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V |
| C302 | QCC11EJ-123 | CAPACITOR | 0.012μF,25V |
| C303 | QCSB1HJ-560 | CAPACITOR | 56pF,50V |
| C304 | QCBB1HJ-820 | CAPACITOR | 82pF,50V |
| C305 | QCFA1HZ-103 | CAPACITOR | 0.01μF,50V |
| C306 | QCBB1HJ-820 | CAPACITOR | 82pF,50V |
| C308 | QCT25UJ-181 | CAPACITOR | 180p |
| C309 | QCT25UJ-330 | CAPACITOR | 33p |
| L301 | PU48530-560J | COIL | 56μH |
| L302 | PU48530-3R3K | COIL | 3.3μH |
| L303 | PU48530-3R3K | COIL | 3.3μH |
| L304 | PU59152-101J | COIL | 100μH |
| △ T301 | PU56175 | S.TRANS | |
| SLD1 | PU61041 | SHIELD CASE | |
| SLD2 | PU61042 | SHIELD COVER | |
| SLD3 | PU61043 | SHIELD PLATE | |

DECK TERMINAL BOARD ASSEMBLY <51>

| | | | |
|---------|--------------|------------------------------|-------------|
| PWBA | PB10715A-03 | DECK TERMINAL BOARD ASSEMBLY | |
| Q1,Q2 | PU61321-1-1 | TAPE SENSOR,X2 (Q1 Q2) | |
| S3,S5 | PU61320 | S CASS.SWITCHX2 S3 S5 | |
| TH1,TH3 | NTH5D473KB | THERMISTOR,X2 | |
| IC1 | M66007P | IC | |
| D1 | GL381J | LE DIODE | |
| D2 | RD6.2ES-T1B1 | ZENER DIODE | |
| R1 | QRD161J-102 | RESISTOR | 1KΩ, 1/6V |
| R2 | QRD161J-102 | RESISTOR | 1KΩ, 1/6V |
| R3 | QRD161J-472 | RESISTOR | 4.7KΩ, 1/6V |
| R4 | QRD161J-472 | RESISTOR | 4.7KΩ, 1/6V |
| R5 | QRD161J-472 | RESISTOR | 4.7KΩ, 1/6V |
| R6 | QRD161J-472 | RESISTOR | 4.7KΩ, 1/6V |
| R7 | QRD161J-472 | RESISTOR | 4.7KΩ, 1/6V |
| R8 | QRD161J-103 | RESISTOR | 10KΩ, 1/6V |

| #△ | REF No. | PART No. | PART NAME, DESCRIPTION |
|----|---------|--------------|------------------------|
| | R9 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R10 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R11 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R12 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R13 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R16 | QRD161J-221 | RESISTOR 220Ω,1/6W |
| | R17 | QRD161J-820 | RESISTOR 82Ω,1/6W |
| | R18 | QRD161J-221 | RESISTOR 220Ω,1/6W |
| | R20 | QRD161J-102 | RESISTOR 1KΩ,1/6W |
| | R21 | QRD161J-223 | RESISTOR 22KΩ,1/6W |
| | R22 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R23 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R24 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R25 | QRD161J-472 | RESISTOR 4.7KΩ,1/6W |
| | R26 | QRD161J-563 | RESISTOR 56KΩ,1/6W |
| | R27 | QRD161J-103 | RESISTOR 10KΩ,1/6W |
| | R28 | QRD161J-103 | RESISTOR 10KΩ,1/6W |
| | R29 | QRD161J-103 | RESISTOR 10KΩ,1/6W |
| | R30 | QRD161J-103 | RESISTOR 10KΩ,1/6W |
| | C3 | QCB1HJ-101 | CAPACITOR 100pF,50V |
| | C4 | QCVB1CM-103 | CAPACITOR 0.01μF,16V |
| | S1 | PU61319 | REC SAFETY SWITCH |
| | PS1 | PU61318 | REEL SENSOR |
| | PS2 | PU61318 | REEL SENSOR |
| | CN1 | PEMC0918-016 | FFC CONNECTOR |
| | CN2 | PU60642 | 7PIN CONNECTOR |
| | CN6 | PU59555-4 | CONNECTOR |

LOADING MDA BOARD ASSEMBLY <55>

| | | | |
|---|-------|---------------|------------------------|
| | PWBA | PB10715A2 | LOADING MDA BOARD ASSY |
| | 193 | SDSF2608Z | SCREW,X4 |
| | 194 | PU61322-1-2 | ROTARY ENCODER |
| | 195 | PQM30017-40 | SLIT WASHER |
| △ | IC101 | BA6418N | IC |
| △ | | or XRA6418N | IC |
| | C101 | QETC1CM-476 | E CAPACITOR 47μF,16V |
| | WR1 | PW30218-04416 | WIRE |
| | CN101 | PU59555-104 | CONNECTOR |

SECTION 6

TECHNICAL INFORMATION

6.1 TIMER CIRCUIT

6.1.1 Timer CPU pin function (IC1)

| PIN NO. | LABEL | IN/OUT | NOTE |
|---------|----------------|--------|--|
| 1 | GND | - | GND |
| 2 | F. AUD | IN | FRONT AUDIO INPUT:H |
| 3 | F. VID | IN | FRONT VIDEO INPUT:H |
| 4 | SEP | IN | FRONT SEP(S) INPUT:H |
| 5 | D OUT | OUT | SERIAL DATA OUTPUT |
| 6 | D IN | IN | SERIAL DATA INPUT |
| 7 | IC | - | NC |
| 8 | CLK | IN | DATA TRANSFER CLOCK |
| 9 | STB | OUT | CLOCK OUTPUT PERMISSION |
| 10 | KEY0 | IN | KEY SCAN DATA INPUT |
| 11 | KEY1 | IN | |
| 12 | KEY2 | IN | |
| 13 | KEY3 | IN | |
| 14 | VDD | - | UNSW 5V |
| 15 | Seg1 | OUT | SEGMENT DISPLAY DATA/KEY SCAN PULSE OUTPUT |
| 16 | Seg2 | OUT | |
| 17 | Seg3 | OUT | |
| 18 | Seg4 | OUT | |
| 19 | Seg5 | OUT | |
| 20 | Seg6 | OUT | |
| 21 | Seg7 | OUT | SEGMENT DISPLAY DATA OUTPUT |
| 22 | Seg8 | OUT | |
| 23 | Seg9 | OUT | |
| 24 | Seg10 | OUT | |
| 25 | Seg11 | OUT | |
| 26 | Seg12 | OUT | |
| 27 | Seg13 | OUT | |
| 28 | Seg14 | OUT | |
| 29 | Seg15 | OUT | |
| 30 | Seg16 | OUT | |
| 31 | NC | - | NC |
| 32 | NC | - | NC |
| 33 | VDD | - | UNSW 5V |
| 34 | VEE | - | FDP DRIVE(-28V) |
| 35 | NC | - | NC |
| 36 | NC | - | NC |
| 37 | NC | - | NC |
| 38 | NC | - | NC |
| 39 | Grid6 | OUT | COLUMN DISPLAY DATA OUTPUT(GRID CONTROL) |
| 40 | Grid5 | OUT | |
| 41 | Grid4 | OUT | |
| 42 | Grid3 | OUT | |
| 43 | Grid2 | OUT | |
| 44 | Grid1 | OUT | |
| 45 | VDD | - | UNSW 5V |
| 46 | SAP | OUT | SAP LED CONTROL(ON:H) |
| 47 | STEREO | OUT | STEREO LED CONTROL(ON:H) |
| 48 | HYPER BASS | OUT | HYPER BASS LED CONTROL(ON:H) |
| 49 | FAMILY MESSAGE | OUT | FAMILY MESSAGE LED CONTROL(ON:H) |
| 50 | POWER | OUT | POWER LED CONTROL(ON:H) |
| 51 | VSS | OUT | GND |
| 52 | OSC | - | NOT USED |

Table 6-1 TIMER CPU pin function

6.2 SYSCON CIRCUIT

6.2.1 Syscon CPU pin function (IC601) 1/2

| PIN NO. | LABEL | IN/OUT | NOTE |
|---------|------------|--------|--|
| 1 | S. CURVE | IN | TUNING CHECK |
| 2 | SAP/STEREO | IN | LED CONTROL |
| 3 | DET. S | IN | S-VHS PB:H, VHS PB:L |
| 4 | AVGFM | IN | AUTO TRACKING DATA(AVERAGE VOLTAGE OF PB FM LEVEL) INPUT |
| 5 | AVSS | - | GND |
| 6 | TEST | - | GND |
| 7 | X2 | - | MAIN SYSTEM CLOCK(10MHz) |
| 8 | X1 | - | MAIN SYSTEM CLOCK(10MHz) |
| 9 | VSS | - | GND |
| 10 | OSC1 | IN | SUB SYSTEM CLOCK |
| 11 | OSC2 | OUT | SUB SYSTEM CLOCK |
| 12 | RESET | IN | RESET AT CONNECT VCR TO AC |
| 13 | (NMI) | - | NC |
| 14 | PLL LOCK | IN | TUNING CHECK DATA |
| 15 | SYNC DET | IN | SYNC DETECT(NO SYNC:H) |
| 16 | D. MUTE | OUT | DEMOD MUTE CONTROL |
| 17 | PLL DATA | OUT | TUNING CONTROL DATA |
| 18 | S-CLK | OUT | SERIAL DATA CLOCK OUTPUT |
| 19 | EXP DATA | OUT | ABIT EXP DATA FOR CH PLS CONTROL |
| 20 | EXP CLK | OUT | DATA TRANSFER CLOCK |
| 21 | CSB | OUT | ON SCREEN DATA PERMISSION |
| 22 | TU FG | IN | TAKE-UP REEL ROTATION DET/TAPE REMAIN |
| 23 | OS RESET | OUT | ON SCREEN RESET |
| 24 | SUP FG | IN | SUPPLY REEL ROTATION DET/TAPE REMAIN |
| 25 | HRECST | OUT | HiFi REC START:L |
| 26 | N. D | IN | NORMAL AUDIO DETECT(NORMAL AUDIO:L) |
| 27 | AMUTE | OUT | AUDIO MUTE CONTROL(MUTE ON:H) |
| 28 | AI DATA | OUT | AUDIO CONTROL DATA OUTPUT |
| 29 | AI CLK | OUT | AUDIO DATA TRANSFER CLOCK |
| 30 | CAPREV | OUT | CAPSTAN MOTOR CONTROL(FED:H/REV:L) |
| 31 | H SEL | OUT | HEAD SELECT CONTROL(SP:L/LP:M/EP:H) |
| 32 | A/M/S | OUT | PRE/REC CIRCUIT CONTROL(AUTO:M/MANUAL:H/S&S:L) |
| 33 | MECHA CLK | OUT | MECHANISM MODE DATA TRANSFER CLOCK |
| 34 | RECST/TEST | OUT | REC START:H |
| 35 | MECHA DATA | OUT | MECHANISM MODE CONTROL DATA OURPUT |
| 36 | LCM2 | OUT | LOADING MOTOR DRIVE(2) |
| 37 | REC | OUT | REC:H |
| 38 | LCM1 | OUT | LOADING MOTOR DRIVE(1) |
| 39 | MCE | OUT | MEMORY IC CHIP ENABLE |
| 40 | M-DATA | IN/OUT | MEMORY IC DATA |

Table 6-2-1-A SYSCON CPU pin function (1/2)

6.2.2 Syscon CPU pin function (IC601) 2/2

| PIN NO. | LABEL | IN/OUT | NOTE |
|---------|-------------|--------|--|
| 41 | JSA | IN | JOG DIAL PULSE INPUT |
| 42 | JSB | IN | JOG DIAL PULSE INPUT |
| 43 | STL | IN | SHUTTLE SWITCH |
| 44 | CTL CLOCK 2 | IN | INDEX CONTROL |
| 45 | VPCTL | OUT | V. PULSE ADDITION TIMING CONTROL |
| 46 | P DOWN | IN | POWER DOWN DETECT(POWER DOWN H - L) |
| 47 | STB | OUT | CLOCK OUTPUT PERMISSION |
| 48 | RAEOUT | OUT | REMOTE PAUSE CONTROL OUTPUT |
| 49 | STATUS | OUT | STATUS |
| 50 | RC IN | IN | REMOTE CONTROL DATA INPUT |
| 51 | COMPU | IN | AV COMPULINK MODE |
| 52 | CTL C/D | IN | CTL PULSE INPUT(MODE DETECT/BLANK PORTION DET) |
| 53 | P. CTL | OUT | POWER CONTROL(POWER ON:H) |
| 54 | LP | OUT | LP MODE:L |
| 55 | EE | OUT | EE MODE:L |
| 56 | PMUTE | OUT | PICTURE MUTE CONTROL(MUTE ON:L) |
| 57 | S-OUT | OUT | ON SCREEN CONTROL DATA |
| 58 | S-IN | IN | ON SCREEN /FDP CONTROL DATA |
| 59 | S-CLK | OUT | DATA TRANSFER CLOCK |
| 60 | SERVO DATA | OUT | SERVO IC CONTROL DATA |
| 61 | FEHCTL | OUT | FLYING ERASE HEAD CONTROL(FE ON:H) |
| 62 | SERVO CLK | OUT | DATA TRANSFER CLOCK |
| 63 | VCC | - | SYSTEM POWER |
| 64 | R. PAUSE | IN | REMOTE PAUSE CONTROL(PAUSE ON:L) |
| 65 | - | - | GND |
| 66 | SERVO | OUT | CAPSTAN MOTOR CONTROL(SERVO:L/MECHAON:H) |
| 67 | CTL CLOCK 1 | IN/OUT | INDEX CONTROL |
| 68 | PAUSE | OUT | CAPSTAN MOTOR CONTROL(PAUSE:L) |
| 69 | CAP FG | IN | TAPE SPEED DETECT/BACK SPACE COUNT |
| 70 | DUTY I/O | IN/OUT | IN/OUT INDEX DATA CONTROL |
| 71 | D. FF | IN | DRUM ROTATION DETECT/REC TIMING CONTROL |
| 72 | AVCC | - | SYSTEM POWER(for ANALOG) |
| 73 | - | - | GND |
| 74 | SPEED CTL V | OUT | TAPE SPEED CTL VOLTAGE OUTPUT |
| 75 | DRUM V | OUT | DRUM MOTOR CONTROL |
| 76 | CAP V | OUT | CAPSTAN MOTOR CONTROL |
| 77 | PROTECT | IN | POWER PROTECT DETECT(POWER OFF:L) |
| 78 | A. LEVEL L | IN | AUDIO INDICATOR LEVEL INPUT(Lch) |
| 79 | A. LEVEL R | IN | AUDIO INDICATOR LEVEL INPUT(Rch) |
| 80 | THERM | IN | THERMIC CORRECTION(SLOW CAPSTAN BRAKE CTL) |

Table 6-2-1-B SYSCON CPU pin function (2/2)

6.2.3 SYSCON SERVO BLOCK DIAGRAM

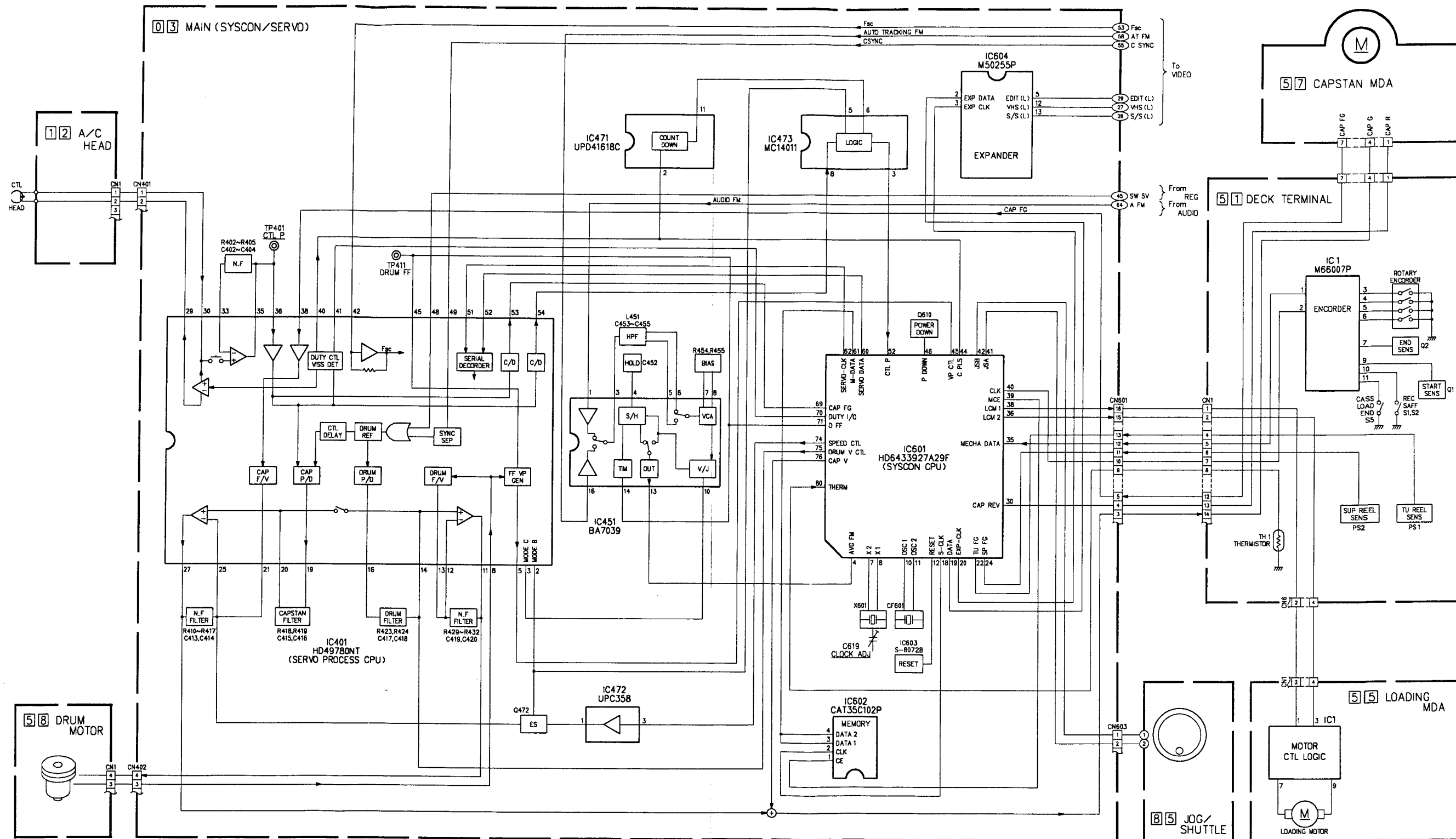


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5. PARTS LIST

5.1 PACKING AND ACCESSORY ASSEMBLY <M1> 5-1

The following table lists different points between Models [HR-S5100U and HR-S7100U] in this series.

| | HR-S5100U | HR-S7100U |
|---------------------|------------|-----------|
| MIC INPUT CONNECTOR | × | ○ |
| JOG/SHUTTLE REMOCON | × | ○ |
| RA EDIT REMOCON | × (OPTION) | ○ |

Notes : ○ : USED × : NOT USED

The following table lists different points between Models [HR-S4900U, HR-S6900U, HR-S5100U and HR-S7100U] in this series.

PACKING AND ACCESSORY ASSEMBLY <M1>

| REF. No. | ITEM | MODEL | HR-S4900U | HR-S6900U | HR-S5100U | HR-S7100U |
|----------|-----------------------------|-------|--------------|--------------|--------------|--------------|
| 1 | PACKING CASE | | PQ34774 | PQ34865 | PQ35117-2 | PQ35117 |
| 2 | CUSHION ASSEMBLY | | PQ34743A-2 | PQ34700A-2 | ← | ← |
| 3 | PROTECT SHEET | | PQ41026-33 | — | — | — |
| 3 | SHEET (WADDING PAPER) | | — | PQ34189-8 | ← | ← |
| 6 | RF CABLE | | PU59168-5 | ← | PEAC0294 | ← |
| 8 | PIN CORD | | PEAC0135 | ← | — | — |
| 9 | BATTERY, X2 | | R6PRPA-2ST | ← | R03BPA-2ST | R6PRPA-2ST |
| 12 | PIN CORD ASSY | | PU56142-3 | ← | — | — |
| 13 | PIN JACK CABLE | | PU59205-3 | ← | — | — |
| △ 15 | REMOTE CONTROLLER | | PQ11533B | PQ11374D | PQ21674C | PQ11525L |
| 15A | CAP(BATTERY) | | PQ46061-2 | PQ34388 | — | PQ46034 |
| △ 16 | INSTRUCTIONS | | PU30425-1371 | PU30425-1372 | PU30425-1497 | PU30425-1498 |
| △ 24 | BATTERY | | YU40547, X1 | ←, X2 | ←, X1 | ←, X2 |
| △ 25 | REMOTE CONTROLLER (RA EDIT) | | — | PQ34835A-2 | — | PQ34835A-2 |
| 26 | CABLE ASSY | | — | — | PEAC0276 | ← |
| 27 | A/V PIN CORD | | — | — | PU58652-2 | ← |

Notes: Mark — is not used.
Mark ← is same as left.

CABINET ASSEMBLY <M2>

| REF. No. | ITEMMODEL | HR-S4900U | HR-S6900U | HR-S5100U | HR-S7100U |
|----------|-----------------------------|-----------------|-------------|-----------------|--------------|
| 50 | FRONT PANEL ASSY | PQ11531A-2 | PQ11531B | PQ11531AE-28 | PQ11531AD-28 |
| 50A | BUTTON (POWER) | PQ34725 | ← | ← | PQ34725-11 |
| 50C | BUTTON (I) | PQ21549 | ← | ← | PQ21549-3 |
| 50E | BUTTON (OPE) | PQ21559 | ← | ← | PQ21559-9 |
| 50F | DOOR (L) | PQ21547 | PQ21547-2 | PQ21547-24 | PQ21547-23 |
| 50G | PLATE (DOOR L) | PQ34734 | ← | ← | PQ34734-3 |
| 50H | DOOR (R) | PQ21548 | ← | PQ21548-20-9 | PQ21548-19 |
| 50K | SPRING (I), X2 | PQ46166 | ← | PQ46166-1-2 | ← |
| 50N | CASSETTE DOOR | PQ21560 | ← | ← | PQ21560-15 |
| 50P | PLATE (DOOR R) | PQ34735-1-2 | ← | ← | PQ34735-10 |
| △ 52 | BOTTOM COVER | PQ11488-1-3 | ← | PQ11488-2 | ← |
| 60 | INERTIA PLATE | PQ45339-2-3 | ← | PQ45339-1-3 | ← |
| 65 | EARTH PLATE,X2 BOTTOM COVER | PQ34795 | ← | — | — |
| 67H | BRUSH ASSEMBLY | PDM4314A-2 | ← | PDM4343B | ← |
| 67J | COLLAR ASSY | PDM4332A | ← | PDM4345A | ← |
| 71 | KNOB (JOG) ASSY | PQ34858A | PQ34858B | PQ34858B-3 | PQ34858G |
| 72 | KNOB (SHUTTLE) | PQ34698-1-2 | PQ34698-2 | PQ34698-2-5 | PQ34698-8 |
| △ 79 | TOP COVER | PQ11487-3-4 | PQ11487-4-4 | PQ11487-9 | PQ11487-7 |
| 80 | SP SCREW,X4 T COVER | PQ43827 | PQ43930 | PQ46254 | ← |
| 82 | FOOT ASSEMBLY, X2 | PQ45976C | ← | ← | PQ45976A-2 |
| 85 | SIDE PANEL (L) | — | PQ11516-2 | PQ11516-1-5 | PQ11516-2-5 |
| 86 | SIDE PANEL (R) | — | PQ11517-2 | PQ11517-1-5 | PQ11517-2-5 |
| WR9 | WIRE, CN3 | PW30504-03W6405 | ← | PW30504-03R6005 | ← |
| WR10 | WIRE, CN201 | PW30504-06W5205 | ← | PW30504-06W4805 | ← |
| WR11 | FFC WIRE, CN701 | PW30802-1136 | ← | PW30802-1124 | ← |
| WR12 | FFC WIRE, CN603 | PW30802-0818 | ← | PW30802-0822 | ← |
| WR15 | WIRE, REG CN3 | PW30603-04448 | ← | PW30603-04D52 | ← |

MAIN BOARD ASSEMBLY <03>

| REF. No. | ITEMMODEL | HR-S4900U | HR-S6900U | HR-S5100U | HR-S7100U |
|-----------------------|---------------------|-------------|--------------|-------------|--------------|
| PWBA1 | MAIN BOARD ASSEMBLY | PB10747B-01 | PB10747A-01 | PB10747B-03 | PB10747A-03 |
| — FMA AUDIO SECTION — | | | | | |
| CN2 | FFC CONNECTOR | — | PEMC0915-004 | — | PEMC0915-004 |

TUNER/MIC BOARD ASSEMBLY <07>

MIC AMP SECTION of HR-S7100U is same as HR-S6900U parts list.

AUDIO UNIT BOARD ASSEMBLY <09>

| REF. No. | ITEMMODEL | HR-S4900U | HR-S6900U | HR-S5100U | HR-S7100U |
|----------|-----------------------|-----------|------------|-----------|-----------|
| PWBA | AUDIO UNIT BOARD ASSY | — | PB10716A-2 | ← | ← |

DISPLAY BOARD ASSEMBLY <28>

| REF. No. | ITEMMODEL | HR-S4900U | HR-S6900U | HR-S5100U | HR-S7100U |
|----------|------------------------|--------------|--------------|--------------|--------------|
| PWBA1 | DISPLAY BOARD ASSEMBLY | PB10781B1-01 | PB10781A1-01 | PB10781B1-02 | PB10781A1-02 |
| JA4 | MINI JACK, MIC | — | PU60664-3 | — | PU60664-3 |

SWITCH/JACK BOARD ASSEMBLY <36>

| REF. No. | ITEMMODEL | HR-S4900U | HR-S6900U | HR-S5100U | HR-S7100U |
|----------|------------------------|--------------|--------------|--------------|--------------|
| PWBA1 | SW/JACK BOARD ASSEMBLY | PB10781B2-01 | PB10781A2-01 | PB10781B2-02 | PB10781A2-02 |
| CN7 | CONNECTOR | — | PU59555-3 | — | PU59555-3 |

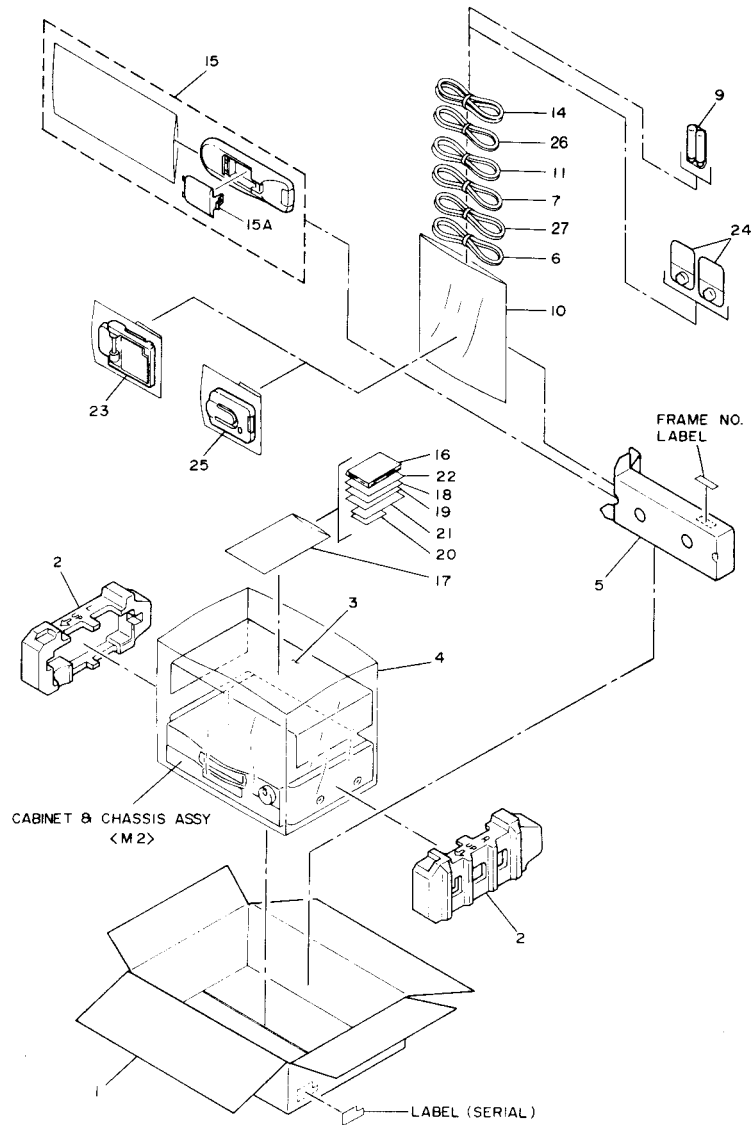
Notes: Mark — is not used.
Mark ← is same as left.

SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>



| REF No. | PART No. | PART NAME, DESCRIPTION | # | REF No. | PART No. | PART NAME, DESCRIPTION |
|------------------------------------|---------------|---------------------------------|----|---------------|---------------|--------------------------------------|
| ***** | | | | | | |
| PACKING ASSEMBLY <M1> | | | | | | |
| 1 | PQ35117 | PACKING CASE,HR-S7100U | ⚠ | 15 | PQ21674C | REMOTE CONTROLLER,HR-S5100U |
| | PQ35117-2 | PACKING CASE,HR-S5100U | ⚠ | | PQ11525L | REMOTE CONTROLLER,HR-S7100U |
| 2 | PQ34700A-2 | CUSHION ASSEMBLY | | 15A | PQ46034 | CAP(BATTERY),HR-S7100U |
| 3 | PQ34189-8 | SHEET | ⚠ | 16 | PU30425-1497 | INSTRUCTIONS,HR-S5100U |
| 4 | PQM30021-82 | POLY BAG | ⚠ | | PU30425-1498 | INSTRUCTIONS,HR-S7100U |
| 5 | PQ34715 | CASE(ACCESSORY) | 17 | QPGA025-03505 | POLY BAG | |
| 6 | PEAC0294 | RF CABLE | 18 | BT-51005-1 | WARRANTY INF. | |
| 7 | PU60111 | S CABLE | 19 | PU61420 | SHEET(RF SW) | |
| 9 | R6PRPA-2ST | BATTERY,X2,HR-S7100U | 20 | BT-51006-1 | REGIST.CARD | |
| | R03BPA-2ST | BATTERY,X2,HR-S5100U | ⚠ | 21 | PU33941-3-3 | SAFETY CAUTION |
| 10 | QPGA020-02005 | POLY BAG | | 22 | PU36560 | CONNECTION SHEET |
| 11 | PEAC0262 | PIN CORD[Mini-Plug cable(3.0m)] | ⚠ | 23 | PQ34817A | REMOTE CONTROLLER(CABLE TV) |
| 14 | QMP14H0-183B | POWER CORD | ⚠ | 24 | YU40547 | LITHIUM BATTERY,S5100U X1 S7100U X2 |
| | | | ⚠ | 25 | PQ34835A-2 | REMOTE CONTROLLER(RA EDIT),HR-S7100U |
| | | | | 26 | PEAC0276 | CABLE ASSY[Mini-Plug cable(1.5m)] |
| | | | | 27 | PU58652-2 | AV PIN CORD |



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